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THE FAMILY DOCTOR,
OR THE
HOME BOOK
OF
HEALTH AND MEDICINE
A POPULAR TREATISE
ON THE MEANS OF
AVOIDING AND CURING DISEASES
AND OF PRESERVING THE
Health and Vigour of the Body
TO THE LATEST PERIOD;
INCLUDING AN ACCOUNT OF
THE NATURE AND PROPERTIES OF REMEDIES,
THE TREATMENT OF THE
DISEASES OF WOMEN AND CHILDREN,
AND THE MANAGEMENT OF
PREGNANCY AND PARTURITION.

BY A PHYSICIAN OF PHILADELPHIA.

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PREFACE.

THE present work has not been written with a view of encouraging domestic quackery. To treat properly and successfully the various accidents and diseases to which the human body is liable, requires a degree of skill which can only be obtained by years of study, and an entire devotion of the mind to the practice of the healing art. This is the province solely of the regular-bred and scientific physician;—to procure as speedily as possible the services of whom, upon even the slightest attack of disease, is always the wisest and safest course to pursue.

It is all important, however, that the public generally should be, as far as possible, made acquainted with the structure and functions of the human body; the various agents by which it is preserved in a state of health and vigour, and by the abuse of which disease is induced; and that they should not be left in entire ignorance of the nature and effects of remedial agents, and the causes and symptoms of the various morbid affections of most common occurrence. It is believed that by the general diffusion of information on these points, quackery of every species will be most successfully combated, the comfort and success of the regular practitioner aided and facilitated, and the improvement of the healing art greatly promoted.

To demonstrate, as far as is known, shortly and clearly, the nature of the varied and multiplied forms of disordered health, is indispensable, in order to convince the public at large, of the importance and difficulty of accurately distinguishing diseases. To show the real nature and effects of

remedies is also requisite, in order to prevent superstitious, inert, dangerous and empirical practices. And, it is not less indispensable with a view both to preserve health and to restore it when impaired, to explain the powerful influence upon the system of diet, regimen, and other accessory agents. A host of prejudices, which the medical man finds it often even more difficult to combat than the disease itself, would be thus banished; the sick would be more disposed to listen to and adopt rational advice, and would be better able to distinguish sound judgment, enlarged experience, and patient observation, from shallow pretension, base chicanery, and impudent empiricism. To promote these important ends is the sole object of the HOME BOOK OF HEALTH AND MEDICINE. To parents especially, and all such as have the superintendence of children, such a work must be a useful guide—more useful by showing the difficulties than by giving false views of the facilities of managing the health of their young charges. Above all, it can not fail, it is believed, to be a most effectual antidote to quackery and empiricism in all their varied forms.

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PART I.

ANATOMY AND PHYSIOLOGY;

OR,

AN ACCOUNT OF THE STRUCTURE AND FUNCTIONS OF THE HUMAN BODY.

ANATOMY.

ANATOMY is the art of exhibiting the structure of organized bodies, either by dissection, injection, boiling or other modes of preparation; or the knowledge acquired by any of these means.

The importance of human anatomy as the basis of all true physiology, and of the rational exercise of physic and surgery, is now universally acknowledged. Without a perfect acquaintance with the structure, relative situation, and connexion of the different organs of the body, it is impossible to understand correctly the various functions they are destined to perform, to detect the nature and extent of the diseases and accidents to which they are severally liable, or to know, and apply with skill, the remedies best adapted to restore them to their state of health. The ancients, having few opportunities of examining the structure of the human body, made comparatively little progress in the knowledge of its functions; and a few facts obtained by casual inspection of wounded patients, with some analogies gathered from the internal parts of brutes which had been killed in sacrifice or for food, constituted the sum of their anatomical knowledge. Their ideas of the functions of living animals were still more circumscribed.

Of the uses of the heart and arteries, the lungs, and the liver, they were totally ignorant; the grand discoveries of the circulation of the blood, the absorption of the chyle and lymph, the functions of the stomach, of the liver, and of the other viscera employed in digestion and nutrition, are entirely due to the skilful and patient anatomists of modern times. Of the absolute, the indispensable necessity of the most minute knowledge of anatomy to the operating surgeon, it is superfluous to speak. By the exact acquaintance which surgeons have now acquired of the relative position of the various organs, whether muscles, nerves or blood-vessels, they are enabled successfully to perform operations, which formerly would have been regarded as utterly impracticable; and to cure diseases which in ancient times were allowed to wear out the patient in torture and putrefaction.

It is greatly to be regretted, that any obstacles or discouragements to the acquisition of anatomical knowledge should exist in any quarter. There is undoubtedly an instinctive horror at mutilating the erect form, which was so lately the residence of an intelligent and immortal spirit; and few contemplate without the deepest anguish the possibility of this being done to the per-

son of those who had nourished their infancy and protected their childhood, or in whose countenance they were accustomed to discern the benevolent feelings of their heart. Yet the instincts of nature must give way to the calls of duty and necessity. They who, for the acquisition of a useful and necessary profession, devote themselves for a time to the disgusting exercise of dissection, should meet with no obstruction from those who are to benefit by their skill and attainments. If persons in the better ranks of life are afflicted with diseases which require the knife of the surgeon, they very properly demand the assistance of the best that can be procured: but they should remember that they can not have a skilful surgeon who has not dissected many bodies. This should not be forgotten by legislators, judges, magistrates, and other persons in power; who, by the influence of their character and attainments, should temper and remove the prejudices of the people, instead of inflaming them. Every year, there are numerous judicial investigations, on the result of which many lives depend. In trials for suspected murder, and in coroners' inquests, the ends of justice can be attained only by the evidence of medical men, who are called upon to state their opinion as to the cause of death; and who can never, with the slightest accuracy, describe what is the consequence of violence, poison, or disease in any part of the body, unless they have, by the frequent practice of dissection, become familiar with the appearance of the same part in its usual unaltered state. Some knowledge of the human body, and some information on the importance of anatomy, should be communicated in all Mechanics' Institutions; and the labouring classes should be impressed with a proper sense of the importance of good surgeons to them in particular. A rich man, when sick or disabled, can command many alleviations; but to those who must live by the strength of their limbs, and the dexterity of their hands, health and vigour are equivalent to a

fortune. Sensible and well-informed masters should take proper opportunities of impressing on their workmen the utility and necessity of human dissections. When the fall of a scaffold precipitates a number of workmen to the ground—when the bursting of a steam-engine throws down the walls of a manufactory, and mangles many of those employed in it, or scatters the destructive fragments of a vessel among the passengers and crew—when the carpenter or ship-builder cuts an artery with his tools, nothing but the assistance of a skilful surgeon can give a chance of recovery, and preserve the life and limbs of the wounded, for the support of themselves and their dependent families. No plates, no models, no descriptions can convey the knowledge necessary to entitle a man to make the smallest pretensions to operate on the diseased living body. There are means of supplying the materials for a surgical education, without imparting a shock to the feelings of any, and without demoralizing the character of those who are employed; and we confidently trust that the liberality and good sense of the legislature, will take out of the way those obstructions to the attainment of surgical knowledge, which have been long productive, not only of inconvenience, but of profligacy and crime.

By COMPARATIVE ANATOMY, is meant the knowledge of the structure of the bodies, or of the functions of other living creatures besides man. The great functions, which are common to all living and organized beings, can be known only by the diligent cultivation of comparative anatomy. By this we see what powers or operations of nature are necessary to the existence of animal life,—how respiration is performed, and how digestion; how some senses are perfect in some animals, and in others defective, but all conducive to the comfort of the animal in whom they are found. We are thus enabled to distinguish what is essential to animal life, and what is extrinsic or accidental; and in many cases, we

apply to the use of man, for the cure of his diseases, and the improvement of his powers, the knowledge we acquire, by observations and experiments made on the lower animals.

PHYSIOLOGY.

IF we consider the word physiology according to its derivation, it means a discourse concerning Nature; but it is now generally employed to denote that science which explains the functions of organized beings, whether animal or vegetable. Hence we have animal and vegetable physiology. The physiology of man signifies an investigation into the laws connected with the animal, vital, or natural functions of the human body. It explains the manner in which digestion is performed, with the changes which the food undergoes in the stomach and intestines; the way in which the prepared chyle is conveyed to the mass of blood, and incorporated with it in the circulation through the lungs. It describes the modes and uses of respiration, the circulation of the blood, secretion, and growth, or assimilation. Physiology describes also the impressions made on the organs of the senses by external objects; it traces the effects of the mind on the corporeal frame; and explains the phenomena of sleep and waking, of sympathy and habit. Muscular motion, as well in its hidden causes, as in its striking effects, furnishes a fruitful topic to the physiologist. All the above functions pertain to man as an individual; but those which are connected with the preservation of the species, present a train of investigation which has occupied, but not rewarded, the researches of the greatest physiologists. The history of the embryo, of its life within the womb of the mother, of its birth, and of the nourishment of the infant by the milk secreted in the maternal breasts, nearly complete the objects of physiology.

It will be readily seen, of how great importance the science of physiology is, to the general philosopher, as well

as to the surgeon and physician. As comprising the natural history of the most important of the living beings that inhabit our globe, as furnishing the natural theologian with the most beautiful and instructive illustrations of wisdom and design in the author of nature, physiology ranks high among the objects of human knowledge; while the physician, who is not intimately acquainted with the manner in which the body performs its functions in health, can not be competent to understand the phenomena of disease.

SECTION I.

BONES.

THE bones compose the solid framework of the animal body, determining its shape, containing or defending various internal organs, and forming levers, by acting upon which, the muscles effect some of the most important motions of our bodies, particularly those in which the feet, hands, arms, and legs are concerned. Bones vary in their shape, size, and texture, according to their situation and uses. They are composed chiefly of phosphate of lime or earthy matter, and gelatine or animal matter. The outer surface of bones is, in general, firm and compact; while inwardly they are spongy and porous, with numerous blood-vessels running through them. The most general division of bones is into the long and cylindrical, and the flat and broad. The bones of the arms, thighs and legs, belong to the first class, and those of the skull, shoulders and hips, to the latter.

The large round bones, as those of the arms and legs, have a cavity in their centre, to admit of greater lightness being combined with sufficient compactness and strength. In this cavity are contained the marrow and blood-vessels which nourish the bone. There are in the human body altogether, two hundred and forty-eight distinct bones.

At the time of birth, the bones are very imperfect, particularly those of the head; so that by being moveable

in this part, and folding over each other during the time of delivery, an easier passage is procured for the infant. There are many projections from the bones, which in infancy are soft, but which in the adult state are bony; and the same tendency to the formation of bone increasing with our years, bones which were separate in the prime of life, concrete in old age. In the decay of the body, however, the bones are diminished with the other parts, so as in extreme old age to weigh a third less than in the middle periods of life.

To far the greater number of bones, whose ends are not joined to other bones by immoveable articulation, are annexed, by the intervention of cartilage, smaller bones, called epiphyses or appendages. In young subjects these are easily separable, but in adults the points of conjunction are not very perceptible.

The bones are furnished with a tough membrane, called the periosteum, which is spread on and closely adheres to their surface, the principal use of which seems to be to convey blood-vessels for their nourishment; these blood-vessels are very numerous and remarkable in the bones of the infant state, but become gradually less so in the progress of life.

The ends of the long bones, where they are united to each other, are larger than their middle part, and several advantages attend this structure. By this means, the surface of contact between the two bones at the joint, is increased; their conjunction consequently becomes firmer; there is more space for the connection of the muscles, which also act more powerfully, from their axis being further removed from the middle of the joint, or the centre of motion.

When in a state of health the bones are insensible, but pain is often experienced in them when they are diseased.

The *marrow*, which fills the cavities of the bones, is a fat oily substance, contained in a fine transparent membrane, which receives numerous blood-vessels, and is supported by the fila-

ments of the reticular substance of the bones. If the different parts of a bone are observed, it is found that where the diameter of the bone is the least, there the sides are thickest and most compact; where the diameter is greatest, which is in general towards the ends of the long bones, their structure is very cavernous throughout. The marrow pervades the whole substance of the bones, but is most remarkable in the middle part of the cavities of the long bones. Its appearance and nature also differ in different bones, or in the same bone in the progress of life. Thus, the marrow is bloody in children, oily in adults, and thinner and more watery in aged people.

Besides dislocations and fractures, bones are liable to inflammation, to caries or rottenness, to necrosis, in which the bone dies and is replaced by a new one; to rickets, and to softening and distortion of their substance.

CARTILAGES.

Intimately connected with the bones are the cartilages. Cartilage or *gristle*, is a white elastic substance, differing in density in different situations, and, like the bones, covered with a firm, transparent membrane. Cartilage is composed chiefly of gelatine. Its use is to supply the place of bone, admitting a certain degree of motion, but by its elasticity regaining subsequently its natural position. This is the case in the nose, wind-pipe, anterior part of the ribs, &c. In children, cartilage supplies the place of bone, previous to the formation of the latter. It is also found covering the ends of bones which play upon each other, allowing the joints to move more readily and without abrasion. It finally performs the office both of cartilage and ligament, presenting the elasticity of the former with the firmness of the latter, as in the spine and pelvis. The cartilages are liable to fracture and inflammation.

LIGAMENTS.

Ligaments are strong fibrous cords or bands, which bind together the

bones, strengthen and defend the joints, and strengthen the attachment of various organs, or keep them in their place. They are whitish, inelastic, glistening bodies, possessing little sensibility in their healthy state, but are acutely sensible when inflamed.

ARTICULATIONS.

In the human body, the bones are united or articulated to each other, either moveably or immoveably. They are moveably articulated in three ways: 1st, by a ball and socket, which admit of motion in all directions, as at the shoulder joint: 2dly, by a hinge, which allows of motion in only two directions, as at the elbow and knee; and 3dly, by a long process of one bone received into the cavity of another, which admits of a rotary motion, as in the articulation of the first and second vertebræ of the neck. The immoveable articulation of bones is of two kinds: 1st, where numerous processes of two bones, like the teeth of saws, are mutually received into each other, as in the bones of the head; and 2dly, by the growing together of bones with the intervention of cartilage, as in the union of the sacral with the haunch bones.

The ends of bones which move on each other are tipped with smooth cartilage; and the friction is still further diminished by a fluid, much more slippery than oil itself, which is called synovia. The moveable joints are also furnished with strong membranes, called ligaments, which pass from one bone to another, affording strength, and retaining the heads of the bones in their cavities.

SYNOVIA.

The synovia is a fluid, which serves principally to lubricate the ligaments and cartilages of the articulations. It is supplied by glands which are commonly situated in the joints, in such a manner, as to be gently pressed by the motion of the limbs. By this means, the greatest amount of the fluid is caused to be secreted when the most frequent motions are performed. When

the synovia is supplied in too small a quantity, the joint becomes stiff, is moved with difficulty, and emits a crackling sound; this is very common in persons advanced in years, or in whom a limb has been kept for a long time without motion.

MOVEABLE ARTICULATIONS.

The most important of the moveable articulations or joints, are the following:

1. *Articulation of the lower jaw.*—An oblique process of the lower jaw runs upwards, until it reaches the bone of the temple, immediately in front of the ear. The upper and inner portion of this process is somewhat rounded, and covered with a smooth cartilage; the portion of the temporal bone which forms the joint is somewhat hollow, forming a superficial cavity, which is also covered with cartilage; immediately in front of this cavity, on the temporal bone, is a small tubercle or eminence, likewise covered with cartilage. Between the condyle or articulating surface of the process of the lower jaw, and the cavity and tubercle of the temporal bone, is interposed a portion of cartilage, accommodated to the shape of the parts between which it is placed. The whole are kept firmly in their place by various ligaments. In consequence of this structure, the lower jaw is capable of opening and shutting, and of moving from side to side, as well as backwards and forwards. When the mouth is widely opened, the condyle of the jaw moves out of the cavity of the temporal bone, in which it ordinarily plays, upon the tubercle in front of the cavity.

2. *Articulation of the head to the spine.*—The head rests upon, and is articulated to the first bone of the spine, called *atlas*. The atlas has nearly the form of an oval ring; on its upper surface, there is, on each side, a smooth cup-like depression, covered with cartilage, into which are received two projections of the hindmost bone of the skull; this connection forming a joint, which enables the head to move backwards and forwards. Similar concavi

ties exist on the lower surface of the atlas, which joint it with the next bone of the spine. Within the anterior part of the atlas, there rises from the bone below, a tooth-like projection, which, together with that part of the atlas in contact with it, is smooth, and covered with cartilage; around this tooth-like projection, passes a strong ligament in the form of a loop, which, being firmly attached, on each side, to the atlas, keeps the former in its place, and allows the latter to revolve partially around it, in which manner the rotary motion of the head is effected.

2. *Articulations of the bones of the spine.*—The spine consists of twenty-four bones; the bodies of all which, except the first, or *atlas*, are connected together by the intervention of a cartilaginous substance which unites them firmly, at the same time that it allows of some motion, in consequence of its elasticity and compressibility. This connection is strengthened by two ligaments, which extend the whole length of the spine, from its second bone to the last. An immense number of other ligaments pass from one bone of the spine to another, so as to bind them together firmly in every possible direction. Processes arise obliquely from the body of each of the twenty-four spinal bones, which are covered with cartilage, and form moveable joints with the oblique processes of the adjoining bone to which they are attached. The articulations of the spine allow of the body being bent forwards, and, to a certain extent, sideways, and also of being slightly rotated, or twisted from side to side.

4. *Articulation or joint of the shoulder.*—This is formed by the large rounded head of the bone of the arm, covered with smooth cartilage, being received into a cavity, or depression, formed in the anterior expanded angle of the shoulder blade, likewise covered with cartilage, and rendered deeper and broader by a tendon which runs along its outer edge. The surfaces of the two bones are kept in contact at the joint by firm ligaments.

5. *Articulation or joint of the elbow.*

—The lower expanded end of the bone of the arm (the humerus) presents a rounded surface, which is covered with cartilage, and is in contact with the upper ends of the two bones of the fore arm, similarly covered. The internal bone of the fore arm, the ulna, at its extremity, is somewhat excavated, so as to receive the lower end of the humerus, in such a manner, as to enable the ends of the two bones to slide over each other in the extension and flexion of the arm. The upper extremity of the outer bone of the fore arm, the radius, is likewise in contact with the humerus at the elbow joint. But the articulation and motions of this bone are somewhat peculiar; immediately below its upper extremity, a slight groove, lined with cartilage, extends around the bone, over which passes a ring of cartilage, which is firmly attached to the side of the ulna; the lower extremity of the ulna, at the wrist, is attached, in a somewhat similar manner, to the side of the radius. In consequence of this arrangement the motions of the hand, which is firmly articulated to the radius, necessary to present the palm upwards or downwards, are effected by the radius revolving above upon its own axis, while the ulna at its lower extremity revolves partially around the radius. Thus, when the arm is held with the thumb presenting upwards, the two bones are nearly parallel; but when the back of the hand presents upwards, they cross each other. When the arm is fully extended, any further motion backwards is prevented, by a large hooked projection of the ulna, passing into a depression on the back part of the humerus, immediately above the elbow joint. The joint at the elbow is made secure by powerful ligaments, extending from bone to bone.

6. *Articulations or joints of the wrist and hand.*—The articulation of the wrist is very complex, three different joints existing at this part. That formed by the connection of the bones of the fore arm with those of the wrist

—that between the two rows into which the bones of the wrist are arranged, and that, finally, between the bones of the wrist and those of the palm of the hand. The upper surface of the bones of the wrist, comprising the first row, form an oblong rounded head, covered with a single plate of smooth cartilage, which is so uniform, that the individual bones appear to be united into one. This head is received into an excavation on the lower end of the radius: the form of this joint enables the wrist to be moved in nearly every direction. The lower end of the ulna is received laterally into a semilunar cavity of the radius, but is not in immediate contact with the bones of the wrist. Strong ligaments render the articulation of the wrist perfectly secure. The upper and lower row of bones which compose the wrist, form a perfect joint, capable of a very slight degree of motion in all directions. The four bones which form the palm of the hand, are articulated to the bones of the wrist by real joints, but which allow of very little motion. For each finger, as well as for the thumb, we have three joints, the lower one of which is capable of motion in every direction: the others, only of flexion and extension. All these joints are secured by strong ligaments.

7. *Articulation or joint of the hip.*

—The large rounded head of the thigh bone, covered with a smooth cartilage, is received into a deep cup-like hollow, situated in the haunch bone, forming a joint of the ball and socket kind, and admitting of free motion in every direction. A strong round ligament proceeds from the summit of the round head of the thigh bone, and is attached near the bottom of the cup-like cavity, into which the former is inserted. This, with the strong ligaments which surround the joint, keeps it secure.

8. *Articulation or joint of the knee.*

—This joint admits, only, of flexion and extension: it is formed by the lower rounded surface of the thigh bone, being received into an excavation on the upper surface of the large bone of the leg, the tibia, and by the knee

pan. It is surrounded by a large capsular ligament, in which a fluid is sometimes collected. There are two ligaments within the joint which cross each other, as they pass from the upper surface of the tibia to the lower surface of the thigh bone; these ligaments are stretched when the leg is extended, and relaxed when the leg is bent, allowing at this time a little lateral motion. Between the thigh bone and that of the leg, one on each side, are two semilunar cartilages, thick on their external edges, and thin at the centre; they alter their place according to the situation of the bones, to make the shape of the extremity of the one correspond to that of the other.

The *knee pan*, called by anatomists *patella*, or *rotula*, is the small flat bone situated at the fore part of the joint of the knee. Its shape resembles the common figure of the heart, with its point downward. The anterior convex surface of the rotula, is pierced by a great number of holes, into which fibres of the strong ligament that is spread over it enter. Behind, its surface is smooth, covered with cartilage, and divided by a middle convex ridge into two cavities, of which the external is largest; and both are exactly adapted to the pulley of the thigh bone, on which they are placed in the more ordinary postures of the leg; but when the leg is much bent, the rotula descends far down on the condyles; and when the leg is fully extended, the rotula rises higher on its upper part than the pulley of the thigh bone. The substance of the rotula is cellular, with very thin external firm plates; but these cells are so small, and such a quantity of bone is employed in their formation, that scarce any bone of its bulk is stronger. Besides, it is covered all over with a thick ligament to connect its substance, and is moveable to one side or other; therefore, it is sufficiently strong to resist the ordinary actions of the large muscles that are inserted into it, or any common external force applied to it: while a fixed process, such as the projection at the elbow

would not have been sufficient to bear the whole weight of our bodies, which frequently falls on it, and would have hindered the rotary motion of the leg.

9. *Articulations or joints of the ankle and foot.*—The two bones of the leg, at the lower extremity, are firmly connected together, the end of the two forming, when joined, an excavation, covered by a single plate of smooth cartilage; into this excavation is received the upper surface, similarly covered, of the superior bone of the instep. The principal motions of the ankle joint are flexion and extension; it admits also, however, of considerable motion laterally. The joints of the instep and toes, resemble very nearly those of the wrist and fingers.

SECTION II.

THE SKELETON.

THE skeleton, by which is understood all the bones of the body connected together in their proper situations, is divided into the head, trunk, and extremities.

When the bones are put into a natural situation, scarcely any one of them will be found to have a perpendicular bearing on another: though the fabric composed by them is so contrived, that in an erect posture, a perpendicular line from the common centre of gravity, falls in the middle of their common base. On this account, we can support ourselves as firmly as if the axis of all the bones had been a straight line, perpendicular to the horizon: and we have much greater quickness, ease and strength, in several of the necessary motions, as well as other advantages in the situation and protection of the viscera. It is true, indeed, that wherever the bones, on which any part of the body is sustained, decline from a straight line, the force of the muscles required to counteract the gravity is greater than would be otherwise necessary; but this is more than compensated, by the advantages above mentioned.

THE HEAD.

The bones of the head are divided into those of the skull and face. The skull, or that bony case which surrounds and protects the brain, consists of eight pieces of bone. At the fore part, is placed the frontal bone; at the back part, the occipital bone; at the upper and side parts, the parietal or square bones; in the fore part of the base, the ethmoid or sieve-like bone; in the middle of it, the sphenoid bone. These two latter bones are common to the cranium and face.

The *frontal bone* is so called, from its being the only bone of the forehead, though it extends considerably farther upwards. It has some resemblance in shape to the clam-shell. The greater part of it is convex externally, and concave internally, with a serrated circular edge. Below, this bone contributes considerably to the formation of the cavities, in which the eyes are lodged. In the part of the frontal bone which corresponds with that part of the forehead immediately above the eyebrows, the two tables of the bone separate, by the external being protruded outwards, to form two large cavities, called frontal sinuses. These cavities communicate with the external air by means of the nose.

Each of the two *parietal bones* is an irregular square, its upper and fore sides being longer than that behind or below. The inferior side is a concave arch; the middle of it receiving the upper and round part of the temporal bone. The external surface of each parietal bone is convex. On their inner concave surface we observe a number of deep furrows, disposed like the branches of trees, which receive the blood-vessels of the brain. The parietal bones are the most equal and smooth, and are among the thinnest bones of the cranium. These bones are joined before to the frontal; at their long inferior angles, to the sphenoid bone; at their lower edge, to the temporal bones; behind, to the occipital bone; and above, to one another.

In a child born at full time, none of the sides of this bone are fully formed, and the brain is in general not completely surrounded by a bony case, till six or seven years of age.

The *temporal bones* are equal and smooth above, where they terminate in a semicircular edge, which is laid over the inferior part of each of the parietal bones, as the scales of fish are placed over each other. Behind this, the upper part of the temporal bone is thicker, and more unequal. Towards the base of the skull, the temporal bone is very irregular and unequal, and becomes contracted into an oblong, very hard substance of a pyramidal shape; which being extended forwards and inwards, becomes smaller, and is called the stony part, and contains the internal parts of the organ of hearing. Each temporal bone has three remarkable projections. The first, placed at the lower and posterior part of the bone, directly below the ear, is from its resemblance to a nipple called mastoid. Within, it is composed of small cells, which have a communication with the organs of hearing. About an inch farther forward, the second process begins to rise from the bone; and having its origin continued obliquely downwards and forwards, it becomes smaller, and is at length united with a corresponding process of the cheek bone. In this manner is formed a bony yoke, under which the temporal muscle passes. From the inferior part of the temporal bone the third process stands out obliquely forwards; the shape of it has been thought to resemble the ancient stylus or pen, and it is therefore called the styloid process. The chief use of these processes is to afford attachment to muscles.

The *occipital bone*, so called from its situation at the back part of the head, like the other bones of the cranium, is externally convex, and internally concave. Its figure is an irregular square, of which the angle above is generally a little rounded; and the lower angle is extended to the inferior part of the cranium, in the form of a

wedge, and is thence called the cuneiform process. At the base of this triangular process, is situated the great opening, through which passes the spinal marrow, on each side of which are observed two large oblong eminences, called the condyles, which serve for the articulation of the cranium with the first vertebra of the neck.

The occipital bone at its upper part, where it is chiefly exposed to injury, is very thick and strong; but lower down, where it is protected by the strong and thick muscles which are inserted into it, it is often very thin. The occipital bone is connected above to the parietal bones; laterally to the temporal bones; and below, it is firmly connected to the sphenoid bone, by means of the cuneiform process.

The *ethmoid or sieve-like bone*, derives its name from the numerous small apertures with which it is pierced. It is situated at the fore part of the basis of the skull, between the orbits of the eyes, and extends downwards into the cavity of the nose. The plate of the ethmoid which forms part of the base of the skull, is pierced by a number of small holes through which the nerve of smelling passes into the nose. The rest of the bone is made up of cells, and thin convoluted plates of bone all of which are covered with a continuation of the membrane of the nostrils, and serve to enlarge the organ of smelling, by allowing the membrane of the nose a greater extent.

The *sphenoid or wedge-like bone*, which is so called from its situation in the middle of the bones of the cranium and face, is of a very irregular figure, and bears some resemblance to a bat, with its wings extended. It is connected with all the bones of the skull, and several of those of the face; and extends across the basis of the cranium from one temple to the other.

The skull, when seen from above, and when the forehead is placed next the eye, in form very much resembles an egg; the frontal bone corresponding to the smaller end of it, and the occipital bone to the greater. When seen

in any other point of view, however, this resemblance is not perceptible. The sides of the skull are flat, and the lower part irregular. The size of the head, in a well-formed person, is to the rest of the body as one to nine.

The substance of the bones of the skull is in general made up of two tables or plates, with the interposition of a spongy substance. The external table is thicker, smoother, and covered with the periosteum; the internal is thinner, more uneven, more brittle, and is lined with a thick vascular membrane, called the *dura mater*.

The bones of the head are united to each other by a number of tooth-like processes; and these joinings are called sutures. The coronal suture runs across the anterior part of the head, and connects the frontal bone to the parietal bones. The sagittal suture divides the upper part of the head into two equal parts. It connects the two parietal bones to each other, and passes from the middle of the frontal to the middle of the occipital bone.

The lambdoidal suture is interposed between the back and fore parts of the cranium, or between the occipital and two parietal bones. The two squamous sutures connect the temporal bones to the parietal.

THE FACE.

The face is divided into the upper and under jaws. The *upper jaw* is the immoveable part of the face, which consists of six bones on each side, and a thirteenth in the middle. The thirteen bones are, the two nasal bones; two small bones within the orbits of the eyes, at their inner angle; two cheek bones; two jaw bones; two palate bones; two spongy bones, and the vomer. The nasal bones are placed at the upper part, and form the arch of the nose, next the forehead; the cheek bones form the prominence of the cheeks; the jaw bones extend upwards on each side of the nose, and form the whole lower and fore part of the upper jaw, and the greatest part of the roof of the mouth; the palate bones

are situated at the back part of the palate, nostrils and orbits; the spongy bones are seen within the nostrils, at their lower part; and the vomer helps to separate these two cavities. The bones of the face, besides being connected to the bones of the skull, are also firmly joined to each other. In each of the upper jaw bones is contained a large cavity caused by the separation of the two bony plates of which they are composed; this cavity extends from the lower part of the socket of the eye to the roof of the mouth, and has an opening into the nose. A very thin plate of bone separates it from the roots of the teeth, particularly those of the second grinder. The cavities are lined by a membrane somewhat similar to that which lines the nostrils. They are sometimes the seat of abscesses, fungous tumors, and other diseases.

The *lower jaw* in the adult, consists of only one bone. In form, it resembles a horse-shoe; the convex part of which is turned forwards, and forms the chin. At its back part, on each side, this bone is bent upwards, and terminates in two processes. The anterior of these, which rises highest, is a thin point, into which muscles are inserted. The posterior process terminates in an oblong smooth head, tipped with cartilage, which is received into a pit of the temporal bone directly in front of the ear, where it forms a hinge that is capable of very extensive motion. This bone, as well as the upper jaw bones, are furnished with an outer and inner bony plate, called the alveolar processes, for retaining the teeth with firmness. In each of the jaws are placed sixteen teeth; so that the head, if we include the *os hyoides*, a small bone situated at the root of the tongue, consists, in the adult, of sixty-three pieces.

The bony structure of which the face is composed, is covered with muscles, cellular membrane, fat and the skin. The contraction of the different muscles of the face is capable of being excited by the passions of the mind, in some degree independent of the will and thus gives rise to the different ex-

pressions of countenance, in grief, joy, anger, laughter, &c. The passion of the mind which is most frequently indulged in, whether it be of a benevolent, depressing, exhilarating, or malevolent character, by exciting frequently certain contractions of the muscles of the face, causes, in a great degree, the expression produced by the latter to become habitual; and hence, as we well know, the face is, to a certain extent, the index of the mind.

Facial angle.—If a line be drawn from the most projecting part of the forehead to the most projecting portion of the lower jaw, and across this another line be drawn in a horizontal direction, from the base of the nose along the opening of the ear, between these two lines nearly all the cerebrum or brain proper, will be included, and the angle which these two lines form where they cross will be greater in proportion to the larger size of the brain. The first of these lines is called the *facial line*, and the angle which it forms with the second, the *facial angle*. Now, as upon the development of the organs which compose the cerebrum, the perfection of the intellectual powers depends, of course the more extensive the latter, the more perpendicular will be the facial line, and the greater the facial angle. This has been found to hold true to a very great extent in the human subject, and as we descend from man through the scale of animals placed below him, we find the facial angle to become less and less, until it is finally lost.

THE SPINE.

The spine or back bone consists of twenty-four separate bones, called *vertebræ*. Seven, namely, in the neck, called *cervical*; twelve along the back of the thorax, or chest, called *dorsal*; and five in the loins, called *lumbar*. These twenty-four bones are joined to each other by cartilages, firm at their circumference, but in the centre, of a consistency nearly resembling a glary fluid. The chief advantage of this structure is, that this soft matter in the

centre of the cartilage, when confined, has all the resistance of a solid body, without its hardness, which in this part might be attended with very bad consequences. These bones thus joined together, form a column larger below than above, smooth and round before, very rough and uneven behind, and hollow within, to receive the spinal marrow. The spine, however, though it forms a column, does not form, by any means, an upright column. The spine, viewed sideways, if the sacral bone is considered as a continuation of it, is bent very much in the form of the letter *f*. In the neck, it projects somewhat forwards; lower down, it takes a curved direction backwards, to make room for the heart and lungs. In the loins, it advances again forwards under the centre of gravity, so as to support the abdominal organs. It afterwards turns backwards, for the enlargement of the pelvis; and, finally, the lower extremity turns again forwards, to give support to the lower end of the intestines.

The head is connected to the upper vertebra of the neck, by two smooth projections at the basis of the scull, called condyles, which are received into two corresponding cavities in the upper part of the first vertebra. By means of this joint, we move the head backwards and forwards on the spine, or perform the action of nodding. From the upper surface of the second vertebra of the neck, there arises a long tooth-like process or projection, which is received into a perforation of the first vertebra. This process is rendered smooth by a covering of cartilage; it passes quite through the vertebra above it, and is connected to this, as well as to the cranium, by strong ligaments, which give strength to the connection, and guard against the effects of a too extensive motion. The rotary motions of the head, therefore, are not performed on the first vertebra of the neck, but on the second; the first vertebra, with the head, moving on the tooth-like process of the second vertebra, as a wheel moves on its nave

In consequence of its peculiar structure, the spine is capable of flexion and extension, forwards and laterally. During its flexion the spine forms a curve, and not an angle; as, by the latter, the spinal marrow would suffer compression, from which serious injury would result. The lumbar vertebræ are so joined together as to allow the spine, at the loins, to perform, also, a species of rotation or twisting.

THE NECK.

The part of the body situated between the head and shoulders, is called the neck. It is composed behind of the spine, and in front and on its sides of various muscles, cellular membrane, fat and skin. In the neck, are the larynx and upper part of the windpipe, and the superior portion of the gullet. At its sides are the carotid arteries and jugular veins, together with important nerves, more especially the eighth pair, or pneumo-gastric, which proceeds from the brain to the lungs and stomach. Along the neck are likewise situated a large number of lymphatics, glands and nervous ganglions.

THE MOUTH.

The mouth is formed above by the palatine plates of the upper jaw bones, the palate bones and the soft palate; below by the lower jaw, and various muscles of the tongue; in front and on its sides by the lips and cheeks. Within the mouth are the bony processes that include the teeth, and which are covered by the gums.

THE PALATE.

The upper and arched part of the mouth is called the palate. The palate is divided into the hard and the soft. The hard palate is bounded in front by the teeth, and is formed by a plate of bone, proceeding from the upper jaw and palate bones, covered with the periosteum and the common lining of the inside of the mouth, having on its surface, particularly in some of the lower animals, a number of hard ridges. The soft, or pendulous palate, is a soft

moveable curtain, which hangs down from the margin of the palate bones, between the cavity of the mouth, and the posterior termination of the nostrils. The soft palate is composed of the common membrane of the mouth and nose, and includes a number of mucous glands, and some muscular substance. It forms two arches on each side, descending from the hard palate. The two anterior of these arches are smaller and thinner, and are inserted laterally into the tongue; the two posterior are large, and are connected behind to the pharynx. In the middle and upper part, where all the half arches unite, they are lengthened into a small pointed body, which is easily seen at the back part of the mouth, and is called the uvula. On each side, in the bottom of the triangular space which is left between the anterior and posterior arches, are placed the glandular bodies, called tonsils, or almonds of the ear. They are of an oval form, and have on their surface a number of holes or depressions, which are the orifices of large cells that exist throughout the substance of the gland. From their supposed resemblance to an almond, these bodies have received their popular name; their use is to supply a mucous fluid, for the purpose of lubricating the throat, and facilitating the swallowing of our food.

We have the power of stopping the passage of air from the nose, by drawing up the soft palate, so as to cover its posterior openings. The whole cavity of the mouth is moistened by mucus, and by the liquor from the salivary glands.

The cavity behind the soft palate is called the pharynx. At the back part it is bounded by the vertebræ of the neck, above by the basis of the skull, before and laterally by the soft palate and much cellular substance, and every way by the muscles which surround the neck. The nostrils terminate, at their posterior opening, in the cavity of the pharynx, as do laterally the two eustachian tubes from the internal part of the ears.

Pharynx.—The pharynx is a mus-

cular bag, shaped like a funnel, beginning from the back part of the throat, behind the soft palate, and terminating below in the esophagus, or gullet. Its substance is merely muscular, covered with the same mucous membrane which lines the mouth, fauces, and esophagus. The use of the pharynx is to receive the aliment, and impel it into the esophagus.

Gullet.—The gullet or esophagus is a membranous tube, beginning at the narrow termination of the pharynx. It is placed between the vertebræ of the neck and the windpipe, and descending lower, is embraced by the pleura, and lies in a triangular space, at the back part of the cavity of the chest. Having arrived at the bottom of the chest, it passes through a perforation of the diaphragm, and terminates in the cardia, or left orifice of the stomach.

The esophagus has four coats. First, a covering from the pleura; secondly, a muscular coat of considerable power; thirdly, a cellular coat; and lastly, a tender internal velvet-like coat, similar to that of the fauces, and which is copiously supplied with mucus. The esophagus conveys the food from the mouth to the stomach.

THE TEETH.

The teeth of a person at maturity are in general thirty-two in number, sixteen in each jaw. They are of different forms, according to their uses: thus, in the front of each jaw, there are four teeth for cutting or dividing our food, called incisores; two in each jaw at the sides of the former, for tearing or laying hold of the food; and the rest on each side of these are grinders, for bruising and comminuting it. The teeth which first appear in children are twenty in number; but as their small size would not suffice to fill up the jaw, when this has acquired its proper expansion in the adult, the first set of teeth, by an admirable provision of nature, fall out, and are succeeded by teeth of a larger size, which are permanent till the period of old age. Each tooth has a crown or body; this is the

part which projects from the gums; also roots, or fangs, the number and direction of which vary in the different kinds of teeth; and a neck between the other two portions. The whole of the part which is out of the socket is covered by a thin, but exceedingly compact and firm crust, called the *enamel*; so hard and solid, says the first Monro, that saws or files can with difficulty make an impression on it. Notwithstanding its great hardness, it is in time worn away by chewing; hence, the rough surfaces of some teeth are made smooth and flat, as people advance in life. A little to the side of the extremity of each root of the tooth is a small canal, by which blood-vessels and nerves enter to convey life and nourishment. When in old people this hole is obliterated, the nerves and vessels can not enter, and the teeth loosen and drop out. The teeth are very sensible to impressions from cold and acid fluids. Besides being necessary for mastication, the teeth assist in the pronunciation of several letters.

Formation of the teeth.—The formation of the teeth takes place within the gums of the embryo, about the second month after conception; the jaws of the little being contain, along the surface of the jaws, and covered with the gums, a series of little vesicles, answering in their number and situation to the first or infantile set of teeth. Each of these vesicles consists of an envelope, composed of two layers of membrane, forming a closed sac of an oval form, attached below to a foot-stalk of nerve and vessels, and above to the gum. The cavity of these sacs is filled with a colourless, transparent fluid. The pulpy matter of the nervous and vascular foot-stalks, however, by elongating, soon fills the sacs, the fluid which previously occupied them disappearing as the pulp increases in size. Towards the end of the third month, a thin coating of bone begins to form around the upper part of the pulp. This shell gradually augments in thickness, the pulp becoming at the same time less and less. When the bony shell

which answers to the crown of the tooth, is completely formed, it becomes firmly embraced by the edge of the external membrane around its base, and the inner membrane of the sac, at the same time, increases in vascularity, and secretes on the outer surface of the bone the enamel. At birth, the crowns of the front flat teeth are fully formed, those of the pointed teeth on either side of these are incomplete, and those of the grinding teeth are still more so. The roots or fangs of the teeth are the parts last formed. As the formation of these latter advances, the crown of the tooth presses upon the upper part of the bag which incloses it, and upon the gum; these parts are gradually absorbed, and the tooth penetrates through the gum. Along with the rudiments of the infantile teeth, the gums contain, at birth, the pulps also for the permanent set.

Teething, or Dentition.—As infants are destined for some time to live entirely on milk, or food that requires little or no mastication, the teeth during the first months of life are covered by the gums; and as they advance, they push the gum before them, till, by the process of absorption, the gum immediately over it is gradually thinned and finally destroyed, and the tooth projects from the socket. This process does not begin in every child at the same age. In general, the first pair of teeth appear before the seventh month, and the last before the end of the second year. Those teeth which are to drop out are called the milk-teeth or shedding teeth; they are twenty in number, ten in each jaw. They generally appear in pairs, and those in the lower jaw are cut before the corresponding ones in the upper. The order of succession is most usually this; the two middle front teeth or incisors, then the two next to them, the anterior grinders, the eye-teeth or canine, and lastly, the posterior grinders. There is an interval of one, two, or more weeks, between each successive pair. The variety is great in different individuals, with respect to the commencement and progress of teeth-

ing. In some, not a tooth appears before the fifteenth or eighteenth month in others, the first pair are through by the end of the third month. Sometimes those of the upper jaw come first; sometimes, several pair come very rapidly, and then there is a considerable interval before the rest advance. From the great irritability and tenderness of the constitution during infancy, many disorders are liable to occur in the course of teething; from a simple and salutary looseness of the bowels, to severe and fatal convulsions.

THE CHEST.

The cavity which lies between the neck and abdomen is called the chest or thorax. It is bounded by the ribs and the intercostal muscles, the spine, and breast-bone; it is separated from the abdomen below by the diaphragm; and contains within it many very important organs. The heart, with the great blood-vessels, both arteries and veins, is contained in it; as also the lungs, the thoracic duct, the eighth pair of nerves, and the intercostal nerve. The windpipe passes into the thorax, and the gullet proceeds through it posteriorly to terminate in the stomach. The chest is lined by a fine transparent, polished membrane called the *pleura*, a doubling of which invests the lungs; and hence, in the healthy state, the lungs move freely in the cavity of the chest. The variety and importance of the organs contained within the chest, render it liable to become the seat of many diseases. The varieties of asthma, cough, difficulty of breathing, consumption, &c. have their origin in some diseased action, structure, or secretion within the chest. Severe diseases also occur when the large blood-vessels are enlarged or ossified; and effusion, within the chest, whether of blood, pus, or water, produces dangerous symptoms.

THE RIBS.

The ribs which enclose the greater part of the cavity of the thorax, are somewhat of a semicircular form; they

pass from the spine towards the sternum or breast bone. They are articulated behind to the vertebræ by a projection called their head, and with the transverse process of the vertebræ immediately below, by a projection called tuberosity. Farther forward, on their external surface, we observe on most of the ribs, another smaller tubercle, into which ligaments, connecting the ribs to each other and to the transverse processes of the vertebræ, and portions of muscles, are inserted. Beyond this the ribs make a considerable curve, sometimes called their angle. The ribs then become broad, and continue so to their anterior end, whereas near the spine they are nearly round. To the fore end of each rib a long, broad, and strong cartilage is fixed, and reaches thence to the sternum, or is joined to the cartilage of the next rib. The ribs are twenty-four in number, twelve being placed on each side. They are divided into the true and the false ribs; the seven uppermost on each side, which are connected to the sternum, being called *true*, and the remaining five *false*.

With the exception of the two upper ones, all the ribs point obliquely downwards, as they approach the sternum, and this obliquity increases as we advance lower. A necessary consequence of this structure is, that when the ribs are raised, and they are brought nearer to a right angle with the spine, the cavity of the chest must be considerably enlarged. The upper rib is fixed, but the second and every succeeding rib is gradually more moveable than that placed immediately above it.

The seven upper ribs, called the true ribs, are, as was just remarked, connected to the sternum; the three upper of the false ribs are not connected to the sternum, but adhere by their cartilages to each other, and to the cartilaginous part of the lowermost true ribs. The two lowest of the false ribs are only connected to the spine by one articulation, and have at their other end no other support than the muscles and membranes with which they are sur-

rounded. By this structure the trunk of the body is rendered more flexible at its lower part, where most motion is required.

The uses of the ribs are to form the lateral parts of the thorax; to render the cavity of the thorax larger or smaller in breathing; to protect the viscera of the thorax; to give origins and insertions to a variety of muscles; and to support the mammæ or breasts.

THE BREAST-BONE.

The breast-bone or sternum, is placed at the anterior part of the chest, immediately in the centre, and extends from the collar-bones to the pit of the stomach; it is of a spongy consistence, and of a flat and nearly triangular form; in infancy it consists of several parts, in the adult state of only two, or sometimes three. The upper part is broad and thick, the lower narrow and thin. The lowest part of the sternum is cartilaginous, and from its resemblance to a short sword, is called the ensiform or sword-shaped cartilage. The upper part of this bone is notched for the passage of the windpipe, and there are two depressions on its sides for the articulation of the collar-bones. There are also seven smaller depressions on each side, for the articulation of seven ribs. The uses of the breast-bone are to support the ribs, to protect the lungs and heart, and to furnish connection to the muscular organ, called the diaphragm.

THE INTERCOSTAL MUSCLES.

The intercostal muscles are situated between the ribs, and, by their contraction, raise the latter, in order to dilate the cavity of the chest in the act of respiration. There are two sets of intercostal muscles, one within the other; the fibres of the two sets run obliquely, in opposite directions, from the edge of one rib to that of another, and hence decussate each other like the strokes in the letter x.

THE PLEURA.

The membrane which lines the cavity of the chest, and covers the organs situ-

ated in that cavity, is called the pleura. It is a delicate, smooth, shining and moistened membrane of the serous kind, its free surface being covered with a serous fluid. It forms two distinct sacs, covering the lungs on each side, and from them extends over the inner surface of the chest. The part where the two bags formed by the pleura meet in the centre of the chest, constitutes the mediastinum, between the laminæ of which are situated the heart, gullet, windpipe, aorta, the large veins, going to the heart, &c. An inflammation of the pleura causes the disease known by the name of pleurisy, and when the serous exudation from its surface is increased, dropsy of the chest is produced.

MEDIASTINUM.

A fold of the pleura or lining membrane of the chest, passing from the spine behind to the breast-bone in front, constitutes the mediastinum, which divides the cavity of the chest into two lateral portions, each of which is occupied by one of the lungs. Between the folds of the mediastinum are contained the gullet, windpipe, large blood-vessels and nerves, and the heart.

DIAPHRAGM.

The muscular expansion which divides the cavity of the thorax from that of the abdomen, is called the diaphragm. It is placed very obliquely between these two cavities, its anterior connection being much higher than its posterior. Its middle part is forced up by the viscera of the abdomen, so as to form an arch. The diaphragm, at its anterior part, is attached to the ensiform cartilage, and the cartilages of the sixth, seventh, and all the inferior ribs. Its fibres converge towards a common centre, where they terminate in a broad triangular tendon. This is attached to the internal muscles about the loins. There are several openings through the diaphragm, which give passage to the aorta, the thoracic duct, the vena azygos, the two great intercostal nerves, the esophagus, the vena cava, and

eight pair of nerves. When the diaphragm contracts, its concavity is lessened, particularly on each side, over which the lungs are placed, its centre being firmly fixed from its connection with the membranous bag which surrounds the heart. By the descent of its sides, it pushes downwards and forwards the abdominal viscera, thus lengthening, and of course enlarging, the cavity of the thorax; it is hence the principal muscle of inspiration.

THE PECTORAL MUSCLES.

The muscles situated in front of the thorax, upon its upper and lateral parts, are the pectoral. They are two in number. The most exterior is the largest, arising from two of the ribs, from the breast-bone and the anterior part of the collar-bone; its fibres run towards the arm-pit in a folding manner, and are there connected with a tendon, by which the muscle is inserted into the upper and inner part of the bone of the arm. When in action, this muscle moves the arm forward and obliquely upwards towards the breast-bone. Beneath this muscle is a second smaller one, which arises from the third, fourth and fifth ribs, and terminates in a tendon which is inserted into a projection of the shoulder blade. When in action, it draws the latter forwards and downwards; it also, when the shoulder is fixed, assists in raising the ribs upwards. The two muscles produce the prominence of the breast in the male subject.

THE MAMMÆ OR BREASTS.

The *female breasts* are termed in anatomical language, the *mammæ*. They are two globular organs, situated upon the anterior parts of the female chest, and destined to secrete the milk which constitutes the nourishment of the infant during the early months of its existence. Each breast is composed of a gland, divided into distinct lobes, each of which is subdivided into smaller lobes; by these the milk is separated from the blood. From the smallest subdivisions of the gland arise small ducts, which, joining together as they ad-

vance, finally open upon the nipple, by from fifteen to eighteen minute orifices. It is by these ducts that the milk is conveyed to the nipple, from thence to be drawn by the sucking of the infant's mouth. The different lobula of the breasts are held together by cellular structure, and covered by a fatty cellular membrane, varying in thickness, and by the common integument or skin, which has, here, an extreme delicacy and softness. Near the centre of each breast is situated the *nipple*, which is composed of a spongy tissue, perforated by the milk tubes, and capable of becoming more projecting, and firmer during the process of lactation. The nipple and ring, or areola, by which it is surrounded, are of a bright red colour in young girls, but assume a darker hue in the progress of life, and after child-bearing. The areola of the breast is rough on its surface, being covered with a number of follicles, which secrete a fluid, the principal use of which is to defend the parts from the action of the saliva of the child, during lactation. The breasts are plentifully supplied with blood-vessels and nerves. They are subject to inflammation, terminating in large collections of matter, to scrofulous affections, and to cancer.

THE ABDOMEN, OR BELLY.

Abdomen is the name given by anatomists to the cavity of the belly. It contains many important organs, as those of digestion viz., the stomach and bowels, with all their appendages, such as the mesentery and its glands, through which the chyle, elaborated from the food, must pass, before it mixes with the blood and supplies nourishment to the body; also, the liver, the *pancreas* or sweet-bread, the spleen, the kidneys, and various large blood-vessels. It is bounded by bones and muscles, and is separated from the cavity of the chest by the diaphragm, or midriff. Its lower part, though not so conspicuously marked off by any peculiar division, has an appropriate name, the *pelvis* or basin, and is generally described as a distinct cavity. In

this lower part are contained, in men, the urinary bladder, the spermatic vessels, and the extremity of the great gut; and in women, besides the bladder and gut, the womb, and parts belonging to it.

It will be easily imagined, that from the variety and number of the parts contained in the abdomen, and connected with it, that this cavity and its boundaries must be the seat of many diseases, and the subject of various surgical operations. Its muscular parts are, like all those of similar texture, liable to inflammation, terminating in abscess, or to that sort of it called rheumatism. The apertures which transmit organs from the inner parts may be relaxed so as to allow the bowels to protrude, and form herniæ, or what are commonly called ruptures; or the same disease may be produced from sudden efforts or external injury forcing the bowels through the various openings. The skin and the muscular coverings of the abdomen, are often exceedingly distended by dropsical swellings, by corpulency, by tumours, and by pregnancy. After this last state, they commonly regain the greater portion of their elasticity, but sometimes great relaxation remains ever afterwards, and demands bandages and artificial supports. The abdomen sometimes requires to be pierced by the surgeon, in order to evacuate dropsical, or other fluids. This operation, from a very obvious allusion, is called *tapping*.

THE ABDOMINAL MUSCLES.

The abdominal muscles are situated between the skin and the lining membrane of the abdomen, and form the principal part of the walls of this cavity. They consist of three broad layers of fleshy fibres on each side, and one in front. The fibres of the most internal pass transversely from the cartilages of the inferior ribs, the bones of the spine, and the back part of the pelvis, forwards, to the perpendicular tendon called *linea alba*, which passes down the centre of the abdomen in front. The fibres of the next layer, proceed

obliquely upwards, from the lower part of the back, to the inferior ribs, and upper part of the linea alba; above this muscle is a third, the fibres of which pass obliquely downwards, from the inferior ribs, to the anterior part of the pelvis, and lower portion of the linea alba. The last muscle is the rectus, which proceeds directly upwards in front from the pubis to the lower true ribs. The uses of these muscles, are to support and compress the abdominal viscera, to bend the body forwards, or obliquely, to one or other side; they likewise assist in the acts of sneezing, coughing, in the evacuation of the bowels, &c.

Abdominal Ring.—The abdominal ring is a kind of canal, proceeding on each side, just above the groin, obliquely downwards and forwards, between the parts composing the parietes of the abdomen. Through this canal pass the blood-vessels, lymphatics, nerves, and excretory ducts of the testicles.

PERITONEUM.

The smooth shining transparent serous membrane which lines the cavity of the abdomen, and closely invests the different abdominal organs, is called the peritoneum. Prolongations of the peritoneum form the mesentery and caul or omentum. It is liable to inflammation, and when the serous fluid, with which its surface is always lubricated, is secreted in excess, abdominal dropsy is produced.

Mesentery.—The mesentery is that peculiar arrangement of the peritoneum, by which it attaches the small intestines to the back part of the abdominal cavity. The mesentery is formed by two laminæ of the peritoneum, united by cellular substance. It is attached by a narrow origin to the three first vertebræ of the loins; proceeding forwards, it gradually becomes broader in its progress, and forms a kind of semi-circle: the edge connected with the vertebræ being about six inches in length, while the circumference, attached to the intestines, is upwards of twenty feet. By this arrangement, it

is thrown at its circumference into numerous folds, like the ruffle of a shirt. The laminæ of the mesentery at length receive between them the intestines, and thus afford to these their peritoneal coat. That part of the mesentery which belongs to the small intestines, is more properly called the mesentery; that which belongs to the large is distinguished by the term, mesocolon. The mesentery includes between its laminæ all the blood-vessels and nerves which go to the intestines, and also the numerous lacteal vessels which take up the chyle from the intestines, and the glands with which these vessels are connected.

Caul, or omentum.—The caul, or omentum, is the loose apron-like substance by which the intestines are covered in front. It is formed by the peritoneal or outer coat of the stomach, which passes down from the lower extremity of that organ as far as the navel, and then is folded upwards until it reaches the great arch of the colon, or great gut, to which it is attached. It is formed, therefore, of a duplicature of the peritoneum, folded upon itself. Between the two portions of peritoneum, is interposed a quantity of fine cellular substance, and of fat. In rupture, or hernia, the omentum is very apt to pass out of the abdomen, either alone or in conjunction with the intestine. The uses of the omentum are probably to afford additional warmth to the intestines, and to lubricate their exterior surface.

EXTERNAL SURFACE OF THE ABDOMEN.

The external surface of the abdomen has been divided into a number of regions. Thus, a line drawn across the abdomen from the lower margin of the ribs, will have above it the right and left *hypochondriac region*, lying under those ribs, which are not immediately attached to the breast bone, in front; whilst the space between these, at the lower end of the breast bone not covered by the ribs, is called the *epigastrium*. A second line drawn across from the upper edge of one hip bone to the other, will have three regions above

and three below it. Those above it, on each side, are called the right and left *lumbar*, and that immediately before, having the navel in its centre, the *umbilical*. Those below the line, on each side, beneath the hip bones, are called the *iliac* regions; and the one immediately in front, the *hypogastric* region.

THE PELVIS, OR BASIN.

The pelvis or basin, so called from its shape, is the cavity at the lower part of the abdomen, in which are contained the urinary bladder, the rectum or straight gut, and the internal organs of generation. It is formed behind by the sacrum, or lower part of the spinal column, on the sides by the haunch and hip bones, and in front by the share bones; it is covered externally, and closed below, by ligaments, cellular membrane and muscles. Strictly speaking, there are but three bones that compose the pelvis, the *sacrum* and two *innominata*.

THE INNOMINATA.

These bones, which form the sides and front of the pelvis, are composed in the new-born infant, of three pieces united by cartilage; but in after life, they are firmly united into one solid bone, leaving no trace of the original division. It is upon the lower part of these bones the body is supported when in a sitting posture; their upper part forms the projection of the hips or haunches, and into deep cup-like cavities formed in these bones are received the large round heads of the thigh bones, forming in this manner the hip joint. The *innominata* are firmly united behind by cartilage and ligaments to the sides of the sacrum, and in the same manner to each other in front.

THE SACRUM.

The sacrum is of a triangular shape, its broadest part being uppermost. It is concave and smooth within, concave and full of irregular projections on its posterior side. It is pierced with a number of holes for the transmission

of blood-vessels and nerves, and is very rough on its sides for connection with the cartilage, by which it is joined to the other bones of the pelvis. In contact with its inner concave surface, is the rectum or lower gut.

THE COCCYX.

The coccyx is a small pyramidal bone which is attached to the lowest point of the back bone in the human body. It has received its name from its supposed resemblance to a cuckoo's bill. It is generally composed of two small bones, and is slightly moveable backwards and forwards. Its principal use would appear to be to give support to the lower end of the rectum. In the inferior animals, it is composed of many pieces, and forms the bony structure of the tail.

THE UPPER EXTREMITY.

The upper extremity may be divided into the *shoulder*, the *arm* and *fore arm*, the *wrist*, and the *hand*.

THE SHOULDER.

The shoulder is composed of the *scapula*, or shoulder blade; the *clavicle*, or collar bone, and the round head of the *humerus*, or bone of the arm, covered with muscles, cellular membrane, and the skin.

THE SCAPULA, OR SHOULDER BLADE.

The shoulder blade is a triangular shaped bone, situated, one on each side, at the upper and back part of the chest. Its broadest part, or base, presents backwards towards the back bone, and its narrowest part, or head, forwards, towards the top of the shoulder. Along its outer surface is a raised spine, which, when it reaches to within a short distance of the head of the bone, sends off a broad flat process, or projection, called the *acromion*, which covers the head of the humerus, and forms the top of the shoulder. Another smaller, hooked process is given off from the fore part of the upper surface of the shoulder blade, called the *coracoid*; to this projection one end of the collar bone is at

tached. The head of the bone nearest the shoulder joint is spread out, forming a superficial cavity, into which the rounded head of the arm bone is articulated. The scapula is loosely attached to the ribs by muscle. Its use is to serve as a fulcrum, or point of support to the arm; and by the facility with which it alters its position, it affords, in all the varied motions of the arm, to the head of the humerus, a socket to play in.

THE CLAVICLE, OR COLLAR BONE.

The clavicle is a long irregularly rounded bone, curved so as nearly to resemble the italic *f*. It is placed horizontally between the upper part of the sternum and the acromium process of the scapula; to each of which it is firmly attached by ligaments; at its sternal end there is a joint which allows of a certain extent of motion. The use of the clavicle is to keep the shoulder blade fixed at a proper distance from the fore part of the chest, and in this manner to regulate and give efficiency to many motions of the arm.

ARM-PIT.

This is the deep cavity beneath the shoulder joint, called by the anatomist *axilla*; it is most conspicuously marked out when the arm is held in the extended position. It contains many important parts, particularly the large veins and arteries of the arm; the nerves which supply the limb, and many lymphatic glands. Inflammation of these glands sometimes occurs, giving rise to extensive abscesses, or collections of matter. It is these glands, also, which are so apt to become diseased in cancer, causing the lamentable train of symptoms that accompany the latter stages of this deplorable malady.

THE ARM.

The upper extremity, in man, from the shoulder to the wrist, is called the arm. It is composed of three bones, covered with muscles and the common integuments, and is plentifully supplied with nerves and blood-vessels. From

the shoulder to the elbow, the arm contains a single round bone, called the humerus. It has a large round head, partly set on one side, by which it is attached to a superficial cavity, situated on the anterior part of the shoulder blade. The humerus is larger and rounder at its upper part, and becomes smaller and flatter as it approaches the elbow. This bone is liable to be dislocated at the shoulder joint, and to fracture at any part of its length. The arm, or fore arm, extending from the elbow to the wrist, has two bones, extending parallel the whole length of the fore arm. The inner of these bones, called ulna, forms the elbow by a large hooked projection; the upper end of the ulna is the largest, and is connected by a hinge-like joint to the humerus. The radius is the outermost of the bones of the fore arm; it is nearly similar in shape to the ulna, but having its largest end at the wrist, with which it is articulated by a kind of hinge-joint; the upper end is attached to the side of the ulna by a ring of cartilage: there is a somewhat similar attachment of the lower end of the ulna to that of the radius; in consequence of this arrangement, in the rotatory motions of the wrist, the radius revolves above upon its own axis, and the ulna below, partly around the radius. The bones of the fore arm are liable to be dislocated at the joints of the elbow and wrist, and to fracture.

DELTOID MUSCLE.

The large fleshy mass, situated on the fore part of the arm and shoulder, is the deltoid muscle. It arises from the collar bone and shoulder blade, and is inserted in the middle and fore part of the arm. Its use is to raise the arm.

FLEXORS OF THE ARM.

The muscles which flex or bend the arm, form the mass of flesh on the fore part of the arm, from the shoulder to the elbow joint.

EXTENSORS OF THE ARM.

The fleshy mass on the posterior

part of the arm, extending from the shoulder joint to the elbow, is composed of the extensor muscles of the arm; they are attached by a tendon to the olecranon process of the ulna.

THE WRIST.

The wrist, or carpus, is the part which intervenes between the bones of the fore arm and those of the hand. It is composed of eight small irregular shaped bones, covered with tendons, cellular membrane, ligaments, and the skin. The eight bones of the wrist are arranged in two rows, one of which rows is articulated to the bones of the fore arm, the other to the bones of the hand. The carpal bones are firmly attached together by ligaments, but the junction of the two rows forms a joint capable of moving to a certain extent backwards and forwards, and the bones of each row have a slight lateral motion upon each other.

THE HAND.

This very important part of the human body—to the possession of which man is indebted, in a very great degree, for that dominion which he exercises over all the objects by which he is surrounded—is composed of bones, ligaments, tendons, and muscles, covered with the common integuments. It is divided into the *metacarpus*, *fingers*, and *thumb*. The *metacarpus* is composed of four long slender bones which sustain the fingers, and form with the latter a joint. Each of the fingers is composed of three bones, attached by a moveable joint to the end of each other. The thumb, like the fingers, is composed of three bones; but the bone at its base, instead of being articulated to a metacarpal bone, is jointed to one of the bones of the carpus. The principal muscles which move the hand, with the exception of those of the thumb, and one or two of the little finger, are situated on the fore arm, and are attached to the bones of the hand by long tendons. The muscles of the thumb are situated about its root, and those of the little finger, on the outer side of

the hand. The rotary motion of the hand is produced by muscles which act upon the radius, to which the hand is attached, and cause it to revolve partially at its lower extremity around the ulna. Man is the only animal that possesses an organ similarly constructed with the hand; and to this, as well as to his intellect, is he indebted to his supremacy over every other animal. The highly sensible integument with which the hand is furnished; the large nervous papillæ with which the fingers, particularly towards their extremities, are supplied; the nails, which support the pulp of the fingers, causing them to be the more firmly applied to the body, with which they are in contact; and the organization of the fingers, which enables the latter to grasp in various directions, and in that manner determine with accuracy the shape and size of bodies; render the hand a most important organ of touch, communicating to the brain the most accurate ideas, so far as this sense is concerned. But it is not only in this manner that the hand is of importance; but by enabling man to seize and hold firmly other bodies, and to execute various mechanical processes under the guidance of the mind, it gives to him an immense increase of power and skill, which, deprived of the hand, he could never have possessed. This is owing to the numerous joints, the shape, and varied movements of the hand; but chiefly to the peculiar construction of the thumb, which forms a kind of opposing force to the fingers. The hand was not, therefore, inappropriately styled by the ancients, “man’s sceptre,” and “the instrument of instruments.”

THE FINGERS.

The fingers are composed of three bones, each articulated, one to the end of the other, forming joints which enable them to bend inwards towards the palm of the hand; these bones are covered with ligaments, cellular membrane, and skin. Along their sides run blood-vessels, and on their inner surface the tendons of the muscles which

move them. The lower bones of the fingers are attached by a moveable articulation to the bones which form the body of the hand. The motions of the fingers are effected by muscles, situated on the fore arm, from which long tendons run down over the wrist and palm of the hand, to be attached to the bones of the fingers. At the wrist, they are bound down by a circular ligament: were it not for this ligament, when the fingers are bent, they would start up from their places like the string of a bow. One set of the tendons is inserted into the middle bones of the fingers, the other into the extremities of the latter. To preserve the free action of the two sets, and, at the same time, that they may be disposed in the most convenient manner, there is a loop or slit in each of the short tendons, through which the others pass. By this contrivance, the strongest muscles are made to act upon the part at which the greatest power is required.

THE LOWER EXTREMITIES.

The lower extremities in man are composed, each, of the *thigh*, the *leg*, the *foot* and *toes*.

THE THIGH.

The thigh is made up of the femoral bone, covered with muscles and the common integuments, including between them the femoral artery and veins, and the nerves of the lower extremities. The large muscular mass, situated on the front part of the thigh, is the principal instrument by which the leg is extended; it is assisted by three muscles, situated on the sides of the thigh. The muscles on the back part of the thigh are for bending the leg. The muscles which move the thigh itself are situated, principally, about the sides and back part of the pelvis. Two very considerable ones, however, are within the lower part of the abdomen; they are those by which the thigh is bent forwards; the tendons of these muscles pass out at the openings in the inferior part of the pelvis; some smaller muscles of the thigh also rise within the

pelvis; these are principally concerned in the lateral and rotatory motions of the limb.

The femoral bone.—The femoral or thigh bone, is the longest bone in the body, and is the largest, thickest, and strongest of the cylindrical bones. The lower extremities are connected to the trunk by the head of this bone, which is received into the acetabulum. The thigh bones are not placed in a perpendicular direction, their upper ends being much further apart than the lower. The body of this bone is somewhat of a triangular form; it is convex before, and flat behind, and is marked, particularly behind, by bony ridges, which serve for the connection of muscles. This bone is perforated at one or two places for the reception of blood-vessels.

The thigh bone is not straight, but is arched considerably forwards. Its head is turned inwards, and its neck is almost horizontal, considered in respect to its situation with the body of the bone.

The head of the thigh bone is nearly round, and is marked in the centre with a round pit, into which a ligament, that serves to keep it fixed in the socket, is inserted. Below the neck of the femoral bone are two large rough projections, called the trochanters. The larger of these is directed outwards, and is placed at the outer side of the thigh-bone; the other is placed behind, but points inwards; they are called trochanters, or pulleys, from the muscles inserted into them being the principal instruments of the rotatory motions of the thigh.

The lower extremity of the thigh bone is thick, and terminates laterally in two large projections, which are very close to each other before, but considerably removed behind, where there is formed a deep canal, through which a large artery passes to arrive at the leg.

THE LEG.

Two bones enter into the formation of the leg, the tibia and fibula; these

are covered with muscles and the common integuments. The muscles situated on the leg, are those concerned in the movements of the foot.

The tibia.—The tibia, which is the principal and internal bone of the leg, is of a triangular form, and larger above than below. The upper end of the tibia is large, bulbous, and spongy, and is divided into two cavities, by a rough, irregular protuberance, which is hollow at its most prominent part, as well before as behind. The two cavities are for receiving the condyles of the femoral bone. At the back part of the tibia, the same canal is continued between the condyles, for transmitting blood-vessels and nerves, as in the bone of the thigh. At the anterior part of this bone, is a cavity for the reception of the patella, which corresponds with one between the condyles of the femoral bone. At the internal part of the lower end of the tibia, is a process which forms the inner ankle. Still lower, at the extremity of the tibia, is a transverse articulating cavity, covered with cartilage, and divided by a ridge, which receives one of the bones of the foot. The body of the tibia has three angles, and as many flat surfaces. One of the flat surfaces is turned directly backwards, and one of the angles is placed directly at the fore part of the bone, and is that sharp ridge, called the shin, which is felt by the finger, being only covered by the common integuments of the body.

The fibula.—The fibula, which is placed externally, and parallel to the tibia, is a triangular and very thin bone, nearly as long as the tibia. Its superior extremity is united to the head of the tibia by means of cartilage. Its head does not rise quite so high as that of the tibia, and has, therefore, no connection with the thigh bone; its lower extremity is slightly connected to the foot, and forms the external ankle. Its chief uses are to afford room for the connection of muscles, and to give greater firmness to the connection of the tibia with the foot.

THE GASTROCNEMII MUSCLES.

These muscles form the thick fleshy part, or calf of the leg. There are two on each leg, an external and internal. They both give off a tendon, which, uniting together, form the tendon of Achilles, or the round cord-like body felt above the heel. This tendon is inserted in the bone of the heel. It is upon this latter part, therefore, that the gastrocnemii muscles act, in raising the heel upwards, and pressing the fore part of the foot downwards, thus forming the latter into a lever, to raise the whole body from the ground. The muscles which raise the anterior part of the foot, bending the toes upwards towards the instep, are situated on the front part of the leg.

THE FOOT.

The foot is made up of bones, muscles, tendons, ligaments, covered with cellular membrane and skin. It is divided into the *tarsus*, *metatarsus*, and *toes*. The tarsus is composed of seven very irregular spongy bones; one of these projects downwards and backwards, to form the heel; above this is another, to which the lower end of the *tibia*, or largest bone of the leg, is articulated, forming the ankle joint. The five other bones are placed in front of these, at the instep; from these latter, project forwards the five long slender bones of the metatarsus, which form the body of the foot, anterior to the instep. To the ends of the metatarsal bones, are articulated the bones at the basis of the toes. The big toe is composed of two, and each of the other toes of three bones, jointed like those of the finger. The lower surface, or sole of the foot, is not flat, but arched, so that when it is planted on the ground, the weight of the body is supported on the heel and anterior extremities of the metatarsal bones. The whole length, nearly, of the outer metatarsal bone is also in contact with the ground. By the peculiar manner in which the foot is constructed, the concussion which

would otherwise be communicated to the body, in falls upon the feet, in walking, and in jumping, is, in a great measure, prevented. The arched form likewise facilitates the ordinary movements of the foot, and permits us to walk with greater security and ease over an uneven surface.

SECTION III.

THE MUSCLES.

THE muscles, or that portion of the body which is ordinarily termed flesh, are the organs which change, regulate, and fix the positions and attitudes of the body, and which are directly or indirectly concerned in all the more conspicuous motions of the solids and fluids. In these numerous and important operations, they exhibit phenomena peculiar to themselves, and which cannot be traced to gravity or impulse, to elasticity or to chemical attraction. They produce their effect, whether it be a state of motion or rest, *by contracting their fibres in consequence of stimulants*; while the stimulants, whether chemical, mechanical, or vital, seem to act through the medium of a nervous energy.

They are not restricted to any length, breadth, or thickness; to any form, magnitude, or colour; though every one belonging to a pair resembles its fellow. They are not formed of any one homogeneous substance, but composed of fleshy and tendinous fibres, interspersed everywhere with cellular membrane, and the ramifications of arteries, veins, absorbents, and nerves, all of them alive, and all of them irritable.

The fleshy fibres seldom or never appear single, but are collected into small fasciculi, or bundles, that unite to form larger ones; which larger fasciculi being again united, form the collections which, with their tendinous fibres, &c. we call muscles, and which we distinguish by proper names.

The fleshy fibres are all sensible to stimulants of one kind or another; and

being the only parts that contract in obedience to the will, or in consequence of stimulants operating regularly, they constitute the distinguishing character of muscles. As they derive their principal power from a vital source, the change produced upon them by death is sudden and obvious. Hence the muscles, that when living, could by their action have ruptured their tendons, luxated the bones, or broken them to pieces, would scarcely, when dead, if it were not for their tendons, their cellular membrane, and the ramifications of the blood and absorbent vessels, support their own weight. In the living state, it is obvious, however, that their strength must vary, and in a great measure depend on the nature and degree of the energy communicated. In the voluntary muscles, that energy, to a certain extent, is varied at pleasure. Yet the influence of the will is nothing, compared to the influence of instinct, emotion, and passion, to which the will is frequently subservient. These often affect the whole of the muscles, and, through their medium, alter the secretions. It is this connection, between muscular action and the vital powers, that explains how our muscular strength is varied by the states of sickness and health; and how our exertions are more or less vigorous and extensive, continued for a longer or a shorter period, and attended with greater or with less fatigue, in proportion as the mind happens to be influenced by the exhilarating or depressing passions.

Of the ultimate fibres composing a muscle, of their connection with contiguous fibres, of their form, their structure, and that series of processes or influence which occasions their contraction, much has been said, conjectured, and reasoned; but nothing of importance has been added to our stock of authentic information.

The greater number of the muscles are situated upon the limbs and external parts of the body: many, however, are situated internally, particularly within the abdomen and pelvis. Most of the hollow organs, as the stomach,

intestines, bladder, &c., have a muscular coat, while the heart is composed entirely of muscles. By some anatomists, the number of distinct muscles belonging to the human body, is set down as three hundred and sixty-eight, while others reckon as many as four hundred and fifty.

THE TENDONS.

Tendons are the shining, white and firm substances by which one end of a muscle is attached to a bone. Tendons are somewhat different in appearance and arrangement, in different parts of the body. In the greatest number of instances, they are in the form of round cords, of greater or less size. They are inelastic, and, in a healthy state, insensible. They are formed by a prolongation and condensation of the cellular substance, which is interposed between the minute fibres of the muscles. The tendons may be compared to ropes, by which the muscles are enabled to act upon a portion of bone, situated at a considerable distance from them.

THE MEMBRANES.

A membrane is an expanded thin substance, lining and covering the different parts of the body. The membranes are of different kinds, varying in structure, appearance, and functions. They are named from the fluids which lubricate their free surfaces, serous, mucous, &c. The membranes are extremely liable to inflammation, which alters, if it be not speedily removed, their structure, and changes the nature of the fluids which they secrete. Most of the inflammations which occur within the body are seated in membranes.

Serous membrane.—The serous membrane forms the envelopes of the brain, lines the thorax and abdomen, and covers nearly all the organs contained in these two cavities. It is a thin transparent membrane, its free surface being smooth and shining, of a silvery white appearance; it is constantly lubricated by a thin serous fluid; in consequence of which it receives its name.

In a state of health, it is insensible, or nearly so, and presents no trace of vessels carrying blood; but when inflamed, it becomes very sensible, and of a bright red colour. Under certain states of disease, the serous membrane pours out an increased amount of fluid from its surface, which collects in the cavities, constituting the different dropsies. Pus is also sometimes exhaled from its surface, when inflamed; it becomes likewise covered with a false membrane, which, uniting with a similar morbid production, from an adjoining portion of serous membrane, glues the two surfaces together. In this manner, the cavity of the thorax, or abdomen, has been completely obliterated, or organs are made to adhere together, which, in a healthy state, have no connection with each other.

Mucous membrane.—The mucous membrane lines the nostrils, mouth, windpipe, and bronchii, the alimentary canal, bladder, and various other cavities. It is called mucous, from the circumstance of its being constantly covered on its free surface, during health, with a mucous, or slimy fluid. The structure and general character of this membrane, are the same wherever it is situated. Its free surface has a velvety, or spongy appearance; everywhere it is covered with small eminences or depressions, from which exudes the mucus which lubricates it. It is plentifully supplied with blood-vessels, nerves and lymphatics, which are so intimately combined with the membrane, that they seem to form the greater part of its substance. During health, the mucous membrane has more or less of a rose colour; when inflamed, it becomes entirely red, and secretes, according to the degree or stage of the inflammation, a thin watery fluid, a thick yellow mucus, or pus. Sometimes it pours out large quantities of blood, or its surface becomes covered with a false membrane. The mucous membrane is thickened by inflammation, but its surfaces, which are in contact with each other, never adhere.

SECTION IV.

THE INTEGUMENTS.

THE integuments of the body consist of the cellular membrane, the fat, the skin, hair, and nails.

CELLULAR MEMBRANE.

This is a loose membranous structure, forming an immense number of cells, differing in size and form, interposed between the skin and muscles, and universally distributed throughout the body. It is interposed between all the muscles, all the fasciculi of muscular fibres, and even the ultimate fibres, of which these fasciculi are composed.

All the blood-vessels also, and nerves, are in their course attached to the neighbouring parts by means of this substance. Many of the glands too, which are composed of smaller masses, are united into one body by its intervention. It seems probable, indeed, that the membranes which invest the contents of the abdomen and thorax, and other membranes, in different parts of the body, are composed of the cellular substance in a more consolidated state; and it is, therefore, very properly considered as an universal connecting medium in every part of the system.

Into the cells, formed by this membrane, is exhaled from the arteries, a watery vapour by which it is kept constantly moistened, and which is prevented, during health, from accumulating by the action of the absorbents; when, however, from disease it is furnished in greater quantity than the latter vessels are able to remove it, it fills and distends the cells of the membrane, producing a local or general dropsical swelling. The uses of the cellular membrane are so important, that, in all probability, animals could not exist without it. By uniting the fibres of the muscles into compact masses, it secures them from becoming entangled with each other, and with the minute

blood-vessels, lymphatics, and nerves, which are everywhere distributed among them. At the same time, however, that it connects together the muscles, and preserves them in their relative situations, it is sufficiently loose to give full play to all their motions. It serves also the purpose of a soft and compressible cushion, interposed among the muscles, and, being always moist and slippery, renders their motions easy, and prevents friction.

Certain portions of the cellular substance also afford a lodgment to the fat, and thus fill up the interstices between muscles, and add to the beauty, evenness, smoothness, and softness of the surface of the body.

The cellular substance, besides serving the purposes already mentioned, by being placed between the skin and the muscles, is always considered as one of the integuments of the body.

The different cells of this membrane communicate freely with each other, which is the reason, why in dropsies the water passes from one part of the body to another, and accumulates, particularly in the more depending parts. If the patients are in an erect or sitting posture during the day, the feet and legs swell towards evening, and by the horizontal position during the night, the swelling in the lower extremities, in a great measure, disappears, and other portions of the body increase in bulk. Hence, also, when a wound penetrating the air cells of the lungs, permits air to enter the neighbouring cellular substance, the air passes to every part of the body, puffing up enormously the whole surface, and causing the skin, when pressed upon, to produce a crackling noise. This constitutes the disease, called *emphysema*. It is by the free communication throughout the cellular membrane, that butchers blow up the veal; and beggars sometimes produce upon themselves enormous swellings, to excite compassion. The cellular membrane is the seat of those collections of matter called abscesses.

ADIPOSE MEMBRANE.

That portion of the cellular membrane which contains the fat, is termed adipose. The fat of the human body is contained in small distinct cells, formed by a fine transparent membrane, the arrangement of which, as well as the quantity of fat with which they are filled, varies in different parts of the body. The adipose membrane is always found in the orbits of the eyes, on the soles of the feet, and at the pulps of the fingers and toes: it exists abundantly about the base of the heart, around the kidneys, within the abdomen and beneath the skin. It is never met with in the eyelids, scrotum, lungs, or within the skull.

Adeps, or fat.—Fat is an oily matter contained in the cellular substance of animals, of a white or yellowish colour. It seems to answer several important purposes: it facilitates the motion of the various parts where it is lodged; it fills up interstices in different situations; and as it is a bad conductor of heat, it appears to contribute to the preservation of the temperature of animals. It is used with other animal substances as an article of food; and where the digestive powers are strong, it proves highly nutritious. Those animals which sleep all the winter, are generally fat at the commencement of their long slumber, and come out of it very lean, owing to the fat having been absorbed and carried into their system, for the purpose of nutrition. Fat has a tendency to accumulate very much in some persons who live luxuriously, using great quantities of animal food, with porter, and other malt liquors, and who take little exercise. Others, without such causes, seem to get corpulent from peculiarity of constitution. It sometimes proceeds to such an extent as to be a real disease, incapacitating the individual from exercise, and from performing the duties of life, besides rendering him liable to apoplexy, and the other diseases analogous to it.

THE SKIN.

The skin is the outer covering of the body. It varies in texture and thickness in different parts, according to their functions and uses. It is composed of the cuticle, or scarf-skin, which constantly decays and is renewed; of a second layer, called the mucous body or rete mucosum, and underneath this, of the true skin. In the rete mucosum is situated the colouring matter which determines the race, as the negro, the copper-coloured, &c. The skin varies in thickness, according to the part on which it is spread, and the uses to which that part is destined, from the thin transparent covering of the lips, to the hard and horny covering of the labourer's hands, and the soles of the feet. The skin is one of the great outlets, by which the matter that is no longer wanted, is discharged from the body.

CUTICLE.

The external covering of the body. It is thin, semi-transparent, has neither blood-vessels nor nerves, and exhibits no sensibility. It is pierced by numerous oblique pores, for the passage of hairs, and probably of exhalants. In various parts of the body, numerous sebaceous follicles open on its surface, which supply a greasy matter to lubricate it. In some parts the cuticle is much thicker than in others, as on the soles of the feet, and palms of the hands, particularly of mechanics. It is the thickening of the cuticle that causes corns. The cuticle is frequently destroyed, and is quickly reproduced. It separates, in the form of scales, from the head, and in large patches from the other parts of the body, after various diseases affecting the skin. It is the cuticle which retains the fluid furnished by the true skin when acted upon by a blister. The uses of the cuticle, are to defend the true skin from the too rude attack of external substances, and to preserve it in a proper state of moisture, by preventing too great evapora-

tion of its fluids. The cuticle also prevents the absorption into the system of various deleterious substances, which accidentally come in contact with the surface of the body.

THE CUTIS.

The cutis or true skin is situated within the cuticle, between which and the former, is interposed the soft mucous body, termed *rete mucosum*. The cutis is composed of fibres, intersecting each other in various directions, and leaving between them spaces for the transmission of blood-vessels, nerves, and absorbents. It is composed chiefly of gelatine. On the outer surface of the cutis, are a number of small eminences, formed by the extremities of vessels and nerves. These are called the papillæ of the skin; they become turgid or erect, when the skin exercises its function of touch. The skin is the great external organ of sensation; it is liable to inflammation, and to a variety of diseases, termed *eruptions* and *cutaneous affections*.

THE MUCOUS BODY.

The mucous body, or *rete mucosum*, is interposed between the cuticle and cutis. It is of a consistence, between that of a solid and a fluid; it varies in colour, according to the complexion. In fair people, it is nearly white; in brown people, of a dusky hue, and in the negro, black. In the latter, it has also more consistency, and can be separated from the lower surface of the cuticle, which cannot be effected in the European.

Cutaneous exhalation.—A fluid is constantly given off by the skin in the form of vapour; when invisible, it is called *perspiration*, or *insensible perspiration*; when from any cause, it becomes condensed in the form of a watery fluid upon the skin, it forms the *sweat*, or *sensible perspiration*. It contains a great deal of water, a trace of acetic acid, and holds in solution the muriates of potash and soda, lactic acid, lactate of soda, and a small quantity of animal matter. It probably va-

ries, however, in its composition at different times, and in different individuals. This exhalation, from the surface, is one of very great importance to the well being of the animal system; independently of its preserving the skin supple and moist, and, by its increased formation and rapid evaporation, enabling the body to maintain its proper degree of heat, when exposed to very high temperatures; it, no doubt, removes, also, from the blood, certain noxious ingredients, and an excess of fluidity. When the cutaneous exhalation is impeded or suspended, disease of the body is very generally produced, which points out the importance of defending the skin by proper clothing, and freeing it from all impurities, by frequent ablutions and friction.

SEBACEOUS GLANDS AND FOLLICLES.

These are small sacs situated in the skin, and opening by minute orifices on its surface; they secrete an unctuous substance, for the lubrication and defence of the external surface of the body. The matter secreted by these follicles sometimes becomes hard, and completely fills them, particularly about the nose; the portion at the orifice becoming blackened by filth, gives the appearance of a number of grains of gunpowder sticking in the skin. By pressure, the sebaceous matter may be discharged from the follicle, resembling a small white worm, for which it is, in fact, often mistaken by the ignorant.

THE HAIR.

The hair is composed of two parts, a root and a tube or stem filled with a pulpy matter. The root is of an oval form, and composed of a soft pulp, inclosed in a semi-transparent bag, open at the lower end, to receive nerves and blood-vessels, and at the upper, to give exit to the hair. The root is fixed in the inner, or true skin, by which it is nourished by the blood and other fluids. The roots of the hair exist in great abundance over the whole body, and what is remarkable, in every individual, many more roots exist than have hairs

growing from them ; hence, hairs often appear on the nose and ears in men, where none generally exist, and on the arms and face in women. The roots of the hair are destroyed by diseases, or ulcers, which affect the organization of the cutis. The hairs do not rise perpendicularly from their roots, but pass, very obliquely, through the two outer coats of the skin. This fact explains the direction and flat position of the hair on the eyebrows and head, the reason why they are pulled out with such difficulty, and the uneasy, and even painful sensation, occasioned by combing the hair in a direction contrary to that in which it passes through the cuticle. Each hair is formed of ten or twelve smaller hairs, which unite at the root, and form a hollow tube, somewhat like a very fine stalk of grass, and, also, like some kinds of grass jointed at intervals. These joints seem to overlap each other, as if one small tube were inserted into another, and so on to the end of the hair. This structure is rendered very evident, by passing the hair, from its end towards the root, between the fingers, when a roughness will be perceived, which is not evident when the hair is passed in the other direction. A hair, also, rolled between the finger and thumb, will always work towards the upper end, never towards the root ; proving that the overlappings are all directed toward the top. It is this peculiar structure of the hair which causes it so readily to entangle, and enables the mechanic to form it into the firm substance composing the body of hats. Like the cuticle and nails, the hollow tube of the hair is semi-transparent, and takes the colour of the matter which rises in the tube from the root. The hair follows very nearly the colour of the skin, being very dark in the negro, and always white in the Albino, while it takes every intermediate shade in Europeans. The hair corresponds, also, in colour, with the eyes ; light hair seldom, or never, accompanying dark eyes. The hair, as is well known, is principally restricted to certain parts of the body ;

though, in the profusion with which the body is furnished with it, and its thickness upon the head and other parts, there is a very great difference in different individuals ; the bodies of some being almost entirely covered with it while in others, it is but thinly supplied upon the head, pubes and chin. Hair never grows upon the inside of the thighs and arms, the palms of the hands and soles of the feet, or about the waist. The uses of the hair, besides serving to bind more firmly together the different layers of the skin, are : that of the head, to protect this part from cold and injuries ; that of the eyebrows and lashes, to guard the eyes from sweat, dust, and too intense a light ; and that on other parts of the body, to protect them from friction. The hair which appears in various situations may have, perhaps, other uses, of which we are still ignorant. Hair being a bad conductor of electricity, may be of service by insulating the body. The hairs are destitute of sensibility ; nevertheless, the passions have such a power over them, that they have become almost instantly blanched by extreme terror, and it is well known that this effect is produced, though more slowly, by sorrow, anxiety of mind, and close study. By many it is supposed, that from fright the hair is caused to stand on end ; this effect is produced, not by any motion in the hair, but by the contraction of a muscle beneath and closely adhering to the scalp, and which carries the latter along with it in all its motions. Long hair has very generally been esteemed an ornament, but it has been suspected to be injurious, by causing too large an amount of blood to be determined to the head for its nourishment ; when very thick, it is also uncomfortable from its warmth and weight. In children, especially, long thick hair upon the head had better be avoided, by frequent cutting ; otherwise, the face is apt to assume a pale, unhealthy appearance, the scalp to be covered with eruptions and sores, and the eyes to become weak and slightly inflamed. The hair is subject to a disease, the *plica*

polinica, in which it is firmly matted together, is extremely sensible to the touch, and bleeds when cut.

THE NAILS.

The horny bodies with which the ends of the fingers and toes are furnished, are termed nails. In man, the nails are broader than in most other animals, and thinner. In the first, they are in consequence better enabled to support the ends of the fingers, and in the second their form renders them best fitted as a weapon of defence, or of aggression. If the nails were allowed to grow, without being cut even with the fingers, they would bend forward, and cover entirely the ends of the fingers. The nails appear to be produced in the same manner as the hair, from a kind of pulpy root. They are firmly attached to the end of the finger by the euticle, which, after running a little way in front of the nails, folds back, and then passes between the nail and the finger.

SECTION V.

DIGESTIVE APPARATUS.

THE digestive apparatus consists of the organs of mastication and the salivary glands; the organs of deglutition, the alimentary canal, the biliary organs, the pancreas, the lacteals, and the thoracic duct.

MASTICATION.

This process is principally effected by the grinding action of the molar, or side and back teeth of each jaw, which are made to play upon the substance held between them by the tongue and cheeks, in consequence of the action of various muscles which close the lower jaw, and move it backwards and forwards, and from one side to the other. While the food is submitted to this grinding process, it becomes intimately mixed with the saliva.

SALIVA AND SALIVARY GLANDS.

The saliva is a mucous fluid poured into the mouth at all times, but espe-

cially during mastication, by the secretory ducts of various glands. It is composed principally of water, mucus, certain animal matters, and various salts. The glands which secrete the saliva are five in number, viz: the *parotids*, one on each side, situated before the ear and behind the angle of the lower jaw; the *submaxillary*, one on each side, beneath the lower jaw, and the *sublingual*, immediately beneath the tongue, in front; the four first named glands have each one, the last, several secretory ducts. The ducts of the parotids open on the inside of each cheek, between the second and third grinding teeth; the ducts of the submaxillary glands open on each side the frenum of the tongue, and the ducts of the sublingual, between the insertion of the tongue and the teeth, in front of the lower jaw.

DEGLUTITION.

Deglutition, or that action by which the food is made to pass through the gullet into the stomach, is effected partly by muscular force, and partly by the weight of the food itself. Solid food, after being properly masticated by the teeth, and mixed with saliva and mucus, which, by the action of the parts, are very copiously secreted during the process of chewing, is collected on the tongue by the motion of the latter, aided by that of the cheeks; it is then conveyed from the tip to the root of the tongue, by the pressure of the tongue against the roof of the mouth. The lower jaw being now fixed by the shutting of the mouth, we are prepared to act with the muscles which pass from the bone of the lower jaw to that which supports the tongue, called the *os hyoides*. A convulsive action of these muscles suddenly draws forwards the *os hyoides*, the root of the tongue, and the larynx; the pharynx is enlarged, the food is forced into the gullet, and in its passage it is prevented, by the moving upwards and backwards of the soft or pendulous palate, from entering the nostrils from behind, and by the pressing down of the epiglottis it is prevented

from getting into the windpipe. The parts previously thrown into action are now relaxed; the food is received by the gullet, and by the successive contraction of its circular muscular fibres from above downwards, is regularly, but rapidly conveyed into the stomach. Fluids are conveyed from the mouth into the stomach, in the same manner as solids. So perfect and exact is the action of the gullet in propelling its contents, that even air can not elude its grasp, which is proved by our having the power of swallowing air, by taking a mouthful of it, and using the same efforts which we employ in swallowing our food.

ALIMENTARY CANAL.

The alimentary canal consists of the gullet, the stomach, and the intestines.

THE GULLET.

The gullet, or esophagus, is a membranous tube, beginning at the narrow termination of the pharynx. It is placed between the vertebræ of the neck and the windpipe, and descending lower, is embraced by the pleura, and lies in a triangular space at the back part of the cavity of the chest; it passes, through an opening in the diaphragm, into the abdomen, and enters the stomach from above, near its great or left extremity.

THE STOMACH.

The stomach is a membranous sac, in form, when distended, not unlike a bagpipe. The stomach is much larger towards the left side than towards the right. It has two orifices, one towards its left side, where the esophagus or gullet enters, called the *cardia*, and another towards the right, called the *pylorus*, which opens into the intestines. The great extremity of the stomach is situated in the left side of the abdomen, and for the most part immediately under the diaphragm; the left orifice is almost opposite to, and very near the middle of the bodies of the lowest vertebræ of the back. The small extremity of the stomach does not reach fully to the right side of the abdomen, but

bends obliquely backward towards the other orifice, so that the *pylorus* lies about two fingers' breadth from the body of the vertebræ, immediately under the small portion of the liver, and consequently lower down and more forward than the *cardia*. The stomach is connected to the omentum, and by means of the omentum, on the left side, to the spleen.

The orifices of the stomach are placed in the recesses on each side of the spine, to which the body of the stomach is closely applied, so as, in a manner, to be bent around it. The orifices of the stomach are therefore placed further back than its body, and also a little higher, though when the stomach is distended, its body rises nearly to a level with its orifices. The body of the stomach is distinguished into two curvatures; the concave surface, which is applied around the spine, is called the lesser curvature, and that which is convex, and is turned forwards and downwards, the greater.

The stomach is formed of three coats. The external of these is the peritoneal; the second is muscular, and is formed of fleshy fibres, variously distributed around the stomach; some run down each side of the stomach longitudinally; other circular fibres surround the stomach. There is a large assemblage of muscular fibres round the right orifice of the stomach, which constricts it so as to prevent the food from passing into the intestines before it has undergone the proper changes in the stomach.

The third, or inner coat of the stomach, is the villous, or mucous. This being more extensive than the rest, is thrown into numerous wrinkles or folds. It obtains the name of *villous* from the unevenness of its surface, as being similar to loose velvet, wool or hair when immersed in water. It is of a reddish colour, and is copiously supplied with mucus.

Besides the three proper coats of the stomach, the thick, firm, cellular substance, situated between the muscular and mucous coats, has likewise been described as a coat.

The stomach is very copiously furnished with nerves, blood-vessels, and absorbents.

The innermost, or villous coat, covered with mucus, contains numerous absorbing and exhaling vessels, and a variety of glands which secrete the fluids useful in digestion. The nerves of the stomach come from the eighth pair and intercostals. The stomach is destined to receive the food, and to perform upon it the first, and a very important part of the process of digestion.

The sympathy of the stomach with other organs, renders it one of the most important parts of the animal economy. Hence the great majority of medicines, which are intended to act on various parts of the body, are first applied to the stomach. By wine, spirits, or opium, and other substances, introduced into the stomach, we can make astonishing changes in the functions of the brain; and not only act upon the corporeal frame, but entirely transform or suspend the intellectual operations, and produce every shade of mental excitement, from the cheerfulness inspired by a temperate draught, to the boisterous violence of intoxication ending in madness or sudden death. By medicines taken into the stomach, we can increase the action of the heart and arteries; we can aid the functions of the skin, we can allay the pain of gout or stone; nor need we now stop to inquire whether these sympathies be direct, or whether the action of the brain must intervene between the application of the substance to the stomach and the ultimate effect.

The stomach, also, is one of the most common inlets of disease. Whatever morbid impressions are made upon it, become quickly transmitted to the liver, intestines, skin, brain, and lungs, while the diseased condition of the latter is likewise participated in by it. The large class of diseases, classed under the name of fevers, in all probability, owe their origin to an irritation, or inflammation of the lining membrane of the stomach.

THE PYLORUS.

The pylorus, or that extremity of the stomach which communicates with the intestinal canal, is surrounded by a ring of muscular fibres of great sensibility, which, by their contraction, close the outlet from the stomach, and refuse egress to such matters as are not fitted to undergo the next changes in the process of digestion. Thus, ill masticated and indigestible food, coins, stones of fruit, and the like, are not suffered at once to pass from the stomach into the intestines.

The pylorus is subject to alteration of structure, ending in cancer, and giving rise to very painful and distressing symptoms.

Gastric Juice.—The fluid secreted by the exhalant arteries of the stomach. Until a very late period, the gastric juice was supposed to act upon the aliment taken into the stomach, as a powerful solvent, and in this manner to effect its digestion. To prove this, attempts have been made to cause the digestion of various articles of food, by submitting them to the action of the gastric juice out of the stomach; and, in these experiments, it has been found that the food does undergo a complete softening or solution; but the product of these artificial digestions has never been proved by chemical analysis to be chyme. Nor is it probable, that a process which is so intimately dependent upon the health and vigour of the stomach, as digestion, and which causes the food to undergo an actual change in its chemical properties, can be effected by the action merely of a solvent fluid. All the office we are permitted to ascribe to the latter, is that of preparing the aliment for the action of the stomach itself; an office which it shares with the teeth and saliva. The fluid contained in the stomach in the absence of food, is clear, ropy, faintly opaque, and entirely destitute of acidity: when alimentary substances are submitted to its action out of the body, they are not dissolved, but become quickly putrid; but when food, or any stimulus, even

the simplest kind, is applied to the inner coat of the stomach, the proper gastric juice is then secreted; it is uniformly acid, and the degree of acidity is in proportion to the amount of the stimulus applied. The acidity is derived from the presence of free acetic, and probably hydrochloric (muriatic) acids.

THE INTESTINES.

By the intestines is meant the whole of the alimentary canal below the stomach. They are divided into the small and large. The small intestines are subdivided into the duodenum, the jejunum, and the ileum. The large, into the cæcum, the colon, and the rectum. All the intestines, except some part of the duodenum, are surrounded and supported by the mesentery. In man, the length of the intestines is about six times that of the body, but in graminivorous quadrupeds their length, in proportion to that of the body, is much greater.

The small intestines fill the middle and fore parts of the abdomen, while the large fill the upper and under parts, as well as the sides of that cavity.

Small Intestines.—The small intestines, in general, are of a cylindrical form. They are composed of four coats, the structure of which is similar, and which bear the same names as those of the stomach. The mucous coat of the small intestines is very extensive, and forms, together with the cellular substance beneath it, a vast number of red semilunar folds or wrinkles, which serve to increase remarkably the internal surface of the intestines, and of course to expose the aliment more fully to the mouths of the lacteals.

The small intestines assist in the preparation of the chyle, and propel their contents towards the great intestines.

With respect to the small intestines in particular, several circumstances are to be noticed. The *duodenum*, so named from its being about twelve inches in length, differs from the others in not being entirely surrounded by the peritoneal coat. The duodenum, be-

ginning from the stomach, first runs towards the right side downwards, and rather backwards; then it bends towards the right kidney, to which it is slightly connected, and thence passes obliquely across the abdomen, ascending gradually from right to left, till it gets before the last vertebra of the back. It continues its course obliquely forwards, by a gentle turn, and then terminates in the jejunum. Through this whole course the duodenum is firmly bound down and concealed by folds of the peritoneum. About six inches from the pylorus, the common bile duct and the duct from the pancreas pour their contents together into the duodenum.

Of the remaining part of the small intestines, two-fifths are called the *jejunum*, or empty gut, and the remaining three-fifths the *ileum*; between them no striking line of distinction can be pointed out. The jejunum is placed more about the umbilical region, the ileum more in the hypogastric. The small intestines at length terminate in the large, in the hollow of the right iliac or haunch bone, below the kidney. At this place there is a valve, which exhibits the appearance of a slit or chink. This valve permits a free passage from the small intestines into the large, but prevents anything from passing readily from the large into the small.

Large Intestines.—The *cæcum*, which forms the beginning of the great intestines, may be considered as a production of the colon expanded into a bag. It is about four fingers in length, and as many in breadth. It is situated in the right iliac region, and rests on the broad part of the haunch bone. At its lower part, it has a long small projection, called vermiform, from its resemblance to an earth-worm. Under the name of *colon*, is comprehended almost the whole of the great intestines. The colon begins in the right iliac region, and is attached to the kidney; thence it rises as high as the stomach and the liver. It now runs transversely before the stomach to the left side, is connected to the spleen and kidney, descends into the left iliac re-

gion, and being there bent in the form of the letter *S*, it terminates in the rectum. The structure of the colon is similar to that of the small intestines.

Along the whole course of the colon are a number of cells formed by circular contractions of the intestine, which serve to retard the progress of its contents.

Along the whole course of the large intestines we also observe small projections of a fatty substance, contained in elongations of their common coat.

The *rectum*, which is a continuation of the colon, begins at the lowest vertebra of the loins. It is bent along the internal surface of the sacrum and coccygis, to which it is closely applied, and terminates at the anus.

THE ANUS.

The anus is the lowest portion of the straight gut, commonly called the fundament. It is surrounded by circular muscular fibres, the assemblage of which is called the *sphincter ani*, which keep the orifice closed, except when the bowels are to be evacuated. The parts in the neighbourhood are abundantly supplied with blood-vessels. As the anus is also surrounded with a considerable quantity of cellular membrane and fat, it is often the seat of inflammation, giving rise to large collections of matter, which, if not skilfully treated, cause, when they break, disgusting and troublesome fistulas. The anus is also subject to piles and other excrescences. When the inner coat of the intestine is protruded out of the body at the anus, which it frequently is to a considerable extent in delicate children, the complaint is called *prolapsus ani*.

BILIARY ORGANS.

The biliary organs are the liver, and the gall-bladder with its ducts.

THE LIVER.

The liver is an organ of a deep red colour, and is by far the largest gland in the body. It is situated immediately beneath the diaphragm. In man, the

liver is divided into two portions, or lobes, the larger of which is placed in the right hypochondrium, and the smaller extends across the epigastric region, towards the left. The liver is divided on the upper and anterior side into lobes, by a broad ligament; on the lower and posterior, by a deep fissure.

The upper surface of the liver is convex and smooth, corresponding to the concavity of the diaphragm. The lower surface is concave and uneven. Behind, the liver has considerable thickness; before, it terminates in a thin sharp edge. At the back part of the liver, near the great fissure, there is a triangular eminence, called the small lobe of the liver, or the lobe of Spigelius. The ligaments of the liver, by which it is supported, are four. Of these, one supports either lobe, and the broad ligament supports the middle. These ligaments are productions of the peritoneum, and are very different from what are called by the same name in other parts of the body. They pass from the diaphragm to the liver. Besides these, there is the round ligament, which is formed by the coats of a considerable blood-vessel of the infant before birth, passing from the liver to the navel. Besides being supported by these ligaments, the great lobe of the liver is likewise connected by immediate adhesion, without the intervention of the peritoneum, to the tendinous part of the diaphragm. Round this adhesion, we may observe the peritoneum folded back, to form the external covering of the liver.

The blood-vessels of the liver, all enter on the concave side of this organ, where it is divided into its two lobes. The uses of the liver are to secrete and prepare the bile.

THE GALL-BLADDER.

The gall-bladder is a membranous receptacle, sufficiently large to contain two or three ounces of bile. It consists of four coats, which are very similar to those of the intestines, and are called by the same names. The use of the gall-bladder seems to be to

retain the bile till its more watery parts being removed, the remainder becomes thicker, and more acrid. The bile in the gall-bladder sometimes concretes into hard masses, called gall-stones. As long as these remain in the gall-bladder, they occasion little or no inconvenience; but when they are propelled into the ducts, they distend and irritate them, so as, when of a large size, to be productive of very violent pain. When these concretions are stopped in the common gall duct, they prevent the passage of bile into the intestines, and give rise to jaundice.

THE BILIARY DUCTS.

The ducts, which serve to convey the bile formed in the liver to the duodenum, deserve particular attention. The duct which comes from the liver, and is called the hepatic duct, is constituted of a number of smaller ducts, which rise through the whole substance of the liver. This duct is joined to another duct, called the *cystic* duct, coming from the gall-bladder, and these ducts together constitute the common bile duct. The common duct descends towards the pancreas, and passing behind the duodenum, pierces its external coat. After having run between the coats of this intestine for some distance, it is at length, between its second and third coat, united with the duct from the pancreas, and the fluids from the liver and pancreas being thus mixed, are poured together into the cavity of the duodenum.

The gall-bladder in man receives all its contents by means of the communication between the cystic and hepatic ducts.

The bile.—The fluid furnished by the liver, and known in popular language by the name of *gall*. The liver secretes, or forms the bile from the blood; bile differs, however, from the ordinary secretions, in being formed from venous, and not from arterial blood. The blood which supplies the stomach and the greater part of the intestinal canal, is taken up by the proper veins of these organs; but instead

of its being conveyed back to the heart, to be from thence conveyed to the lungs, in order to be reconverted into arterial blood, the veins of the digestive organs convey their blood into the substance of the liver, to be employed by that organ in the formation of bile. The bile thus secreted is carried by a canal into the first of the intestines, a few inches below the inferior orifice of the stomach. The canal is formed, as we have described above, by the juncture of two others, one of which comes from the liver itself, and the other from the gall-bladder.

The bile is a fluid of a yellowish green colour, a greasy feel, an intensely bitter taste, and a peculiar smell. It is composed of water, albumen, soda, phosphate of lime, common salt, phosphate of soda, a small quantity of lime, and a peculiar substance called *picro-mel*. The exact uses of the bile, in the animal economy, physiologists have not as yet been able to determine. Numerous direct experiments have, however, proved that it is not essential, as was once believed, to the conversion of the food into chyle; nevertheless, there can be little doubt, that it contributes, in some degree, towards perfect digestion. The latest physiologists are of opinion that it serves to animalize the vegetable, and other portions of our aliment which are destitute of azote; that it prevents the too rapid putrefaction of the food in its passage through the intestines, and that it tends probably to liquefy, and render soluble the fatty part of the food. Besides which, by its stimulant properties, it excites the flow of the intestinal fluids, and increases the peristaltic motion of the bowels, by which their contents are carried regularly onwards towards the anus. The bile is, no doubt, also an important excretion by which the blood is freed of a portion of its carbon, hydrogen, and other principles which are in excess, and is thus prepared for the final purification and change which is effected in it by the action of the lungs. The secretion of bile is increased by heat, by various articles of diet, by cer

tain passions of the mind, as anger, and by whatever exerts a stimulating effect upon the inner surface of the digestive organs, especially of the stomach and upper bowels. To the influence of the bile, was formerly ascribed a long list of diseases, termed bilious; closer and more extended observation has, however, shown that these diseases are dependent upon different degrees of irritation or inflammation of the stomach, duodenum, or some portion of the intestinal canal. From various causes, an excessive flow of bile is occasionally produced, giving rise, by its action upon the bowels, to a vomiting and purging of a bilious fluid—this constitutes ordinary cholera morbus, and is seldom a very dangerous affection. In other cases, the secretion of bile is deficient, or the bile is prevented from flowing into the intestines; when this takes place, every portion of the body, the skin, whites of the eyes, the saliva, urine, &c., assume a yellow colour, more or less intense; the bowels are costive, and the evacuations, when procured, are of a clayey appearance, and very light colour; which symptoms constitute the disease termed jaundice. Jaundice is to be viewed, however, merely as a consequence of a diseased condition of the liver, biliary ducts, or of the stomach and upper portion of the intestinal canal; by the removal of the latter only can its cure be effected.

THE PANCREAS.

The pancreas is a glandular organ, of a pale red colour, and is called in certain animals the sweet-bread. It is situated in the abdomen, behind the stomach, in the triangular space surrounded by the windings of the duodenum. In form, it resembles the tongue of a dog, the narrow termination of which is placed towards the spleen, and is connected to that organ by blood-vessels. The pancreas, in the human subject, is eight or nine inches in length, but very narrow, and its situation in the body is very nearly transverse. The liquor prepared by this gland is re-

markably similar to that prepared by the glands which furnish saliva to the mouth; so that the pancreas may be considered as the largest salivary gland in the body. The fluid it secretes is conveyed by a large duct into the duodenum, in connection with the common bile duct.

THE LACTEALS.

The lacteals, so called from a degree of whiteness in their appearance, like that of milk, which they receive from the colour of the fluid they convey, are delicate transparent vessels which arise from the mucous coat, of the small intestines. Passing in their course through small glands, they advance between the folds of the mesentery towards the second or third lumbar vertebra, where they meet with the lymphatics of the lower extremities and pelvis, as well as of the whole of the abdominal viscera. This junction forms the beginning of the thoracic duct.

The lacteals have at least two coats, which are thin and transparent, but tolerably strong. They are furnished with valves, which are placed in pairs, and which are so numerous, that three or four of them often occur within the distance of one inch.

THORACIC DUCT.

The thoracic duct, so called from its course through the thorax, usually begins opposite the second or third lumbar vertebra. It is of different sizes in different subjects, and is sometimes distended at its lower part into a pyriform bag, called the receptacle of the chyle; but, in general, there is no enlargement so remarkable as to deserve a particular name. The thoracic duct sometimes divides and again unites. It ascends as high as the sixth vertebra of the neck, where, forming an arch, it turns downwards, and enters the left subclavian vein, near the insertion of the internal jugular.

The thoracic duct is furnished with few valves, and those are placed without much regularity. At the place, however, where it is inserted into the

subclavian vein, there is a circular valve, which prevents the blood from getting into it.

Besides the thoracic duct, which receives the lymph from the lower extremities and the left side, and the chyle from the intestines, there is another vessel somewhat similar, but much shorter, on the right side. This receives the lymphatics from the right arm, the right lung, and the right side of the head, and enters the right subclavian vein at the same place where the thoracic duct enters the left.

DIGESTION.

By this term is indicated those changes which the food undergoes within the animal body, in order to adapt it to the purposes of nutrition. The first process to which solid food is subjected, after it is taken into the mouth, is that of *mastication*. In other words, the food is broken to pieces, and ground into a pulp by the teeth; and is at the same time intimately combined with the *saliva*, which, during mastication, is poured into the mouth in large quantities by the ducts of certain glands which separate it from the blood. That mastication and mixture with the saliva are necessary to the perfect digestion of solid food, at least, can scarcely be doubted. In those who swallow their food, not at all, or but imperfectly chewed, either by eating too fast, or from the loss of a part of their teeth, or who waste the saliva by constant and profuse spitting, digestion is known to be less perfectly performed, and attended with greater difficulty, and the food is more apt to cause irritation and disturbance of the stomach, than in others who chew their food fully before it is swallowed, and in whom nothing has occurred to prevent the natural supply of the saliva. The uses of mastication are, no doubt, to break up the texture of the food, so as to enable the action of the stomach upon it to be more readily and fully effected. The saliva, besides giving the food that pulpy consistency, so necessary to its perfect digestion, has been supposed to exert

upon it a solvent power, similar to that attributed to the juices of the stomach. Still later physiologists suppose that the saliva communicates to the food its first degree of animalization, thus approximating it in its character to the substance of the animal it is intended to support. The food being duly masticated, is conveyed down the esophagus, or gullet, and through the cardia, or left orifice of the stomach, into the cavity of the latter organ. The moment a certain amount of aliment is received into the stomach, an increased action of the blood-vessels of its internal coat takes place; the redness of the latter is augmented; and the proper gastric juice is secreted in large quantities, and becomes intimately mixed with the food; which latter is firmly grasped by the coats of the organ, and by the alternate contraction and relaxation of the transverse fibres of the muscular coat, commencing with those nearest the cardiac orifice, it is caused to revolve around the interior surface of the gastric cavity, from point to point, and from one extremity to another. The solution of the more solid portion of the food by the gastric juice, commences almost as soon as it enters the stomach. Water, alcohol and other fluids not containing alimentary matter in solution, pass very rapidly from the stomach, either by absorption or into the intestines. Liquid albumen and albuminous fluids are first coagulated and then dissolved by the gastric juice. Food taken in a liquid form combined with a large quantity of water, as soup, &c. is deprived by the absorbents of the stomach of its aqueous portion before its digestion commences. Animal fat is very quickly and invariably rendered fluid by the heat of the stomach, and, in common with every species of oily food, resists for a long time the digestive process. After the food has been sufficiently dissolved by the gastric juice, and has been caused to revolve around the cavity of the stomach for a certain period, varying in different cases, a thin layer of that part of it which is in contact with the sur

face of the organ becomes changed into a homogenous slightly acid paste, of a grayish colour, called chyme. Successive layers, which, as they are formed, are conveyed out of the stomach through the pylorus, or right orifice, into the duodenum, undergo the same change, until the digestion of the food in the stomach is completed. During the conversion of the food into chyme, both orifices of the stomach are closed. The period necessary for the conversion of food into chyme, varies according to the nature and volume of the former, its degree of mastication and admixture with saliva, the condition of the stomach, and other circumstances. The formation of chyme is rendered imperfect, or altogether suspended, by a variety of circumstances. Whatever impairs the health and energies of the stomach, whether directly or indirectly, will produce this effect, as likewise a sensation of nausea, excited even by the imagination; care, grief and anxiety; intense application of the mind, or disgust; an indolent and sedentary mode of life; passing over the habitual period of eating; the sudden report of good or bad news; the use of opium and other narcotics; violent exercise of the body after a meal; eating too rapidly; the presence of too small or too large a quantity of food in the stomach, or even pressure made upon the stomach after a meal. The manner in which the change of food into chyme is effected, is as yet not perfectly known; by most physiologists, it is supposed to be owing solely to the solvent powers of the gastric juice. Mere solution of the food by the gastric juice will not, however, explain the formation of chyme. The latter is not merely the food converted into a soft pulp; but of whatever nature may be the aliment of which it is composed, it is a homogeneous substance, differing in its chemical properties from the latter. According to the experiments of Leuret and Lassaigne, it is proved that all alimentary substances, with the exception of liquid albumen, undergo in the stomach a complete transformation;

and that, so far at least as it regards animal principles, this change consists in their being made to approach more nearly in their nature to albumen. The food received into the stomach, is, no doubt, prepared for the action of the latter by the gastric fluids with which it becomes impregnated; but its change into chyme can only be ascribed to the vital action upon it of the coats of that organ; how exactly this is effected, we pretend not to understand. During the chemical changes which stomachic digestion effects in the food, various gases are disengaged, particularly carbonic acid gas. The chyme having passed into the duodenum, or first of the intestines, there meets with the bile, and pancreatic juice, and the mucus of the intestine. It now assumes a yellowish colour and bitter taste, and loses, in some degree, the sharp odour which it previously exhaled. Of the uses of the bile in digestion, we have already spoken in the article *bile*; these are, briefly, to retard the putrefaction of the chyme, to render soluble the fatty parts of the food mixed with it, and to aid in animalizing those portions of it which contain a deficiency of azote; in the latter office, it is aided, late experimenters suppose, by the pancreatic juice. As the chyme accumulates in the duodenum, and moves slowly onwards through it and the other small intestines, the softer and more fluid parts pass to its surface, and from these the numerous vessels, the mouths of which open upon the inner coat of the bowels, select the materials which enter into the formation of the *chyle*; a white fluid resembling milk, and nearly approaching in its composition to the blood. The chyle passes onwards through the vessels already alluded to, called lacteals, and through certain glands situated in the mesentery, by the action of which certain important though unknown changes are supposed to be produced in the chyle, and finally it is emptied into the *thoracic duct*. The chyme does not remain so long in the intestines as the food does in the stomach. As new portions arrive from

the stomach, that which previously entered is propelled onwards, by the continued peristaltic action of the intestines.

The part of the aliment which is fit for repairing the waste of the body being thus removed, the excrementitious part which the lacteals refuse to take up, is pushed onward by the peristaltic motion of the intestines, into the cæcum; its return being prevented by the valve of the colon. Here it acquires the peculiar smell of excrement, and it accumulates for some time, and often to a considerable bulk, owing to the delay occasioned by the cells and compartments of the large intestines; till having entered the rectum, and by its bulk distending that portion of the gut, or irritating it by its acrimony, there is an uneasy sensation, and a desire for relief. On many occasions, this uneasy feeling is not so great but it may be resisted; and the intestine ceasing to feel the distension, the desire of evacuation ceases, and may not recur for some time. The consistence of the excrement has considerable effect here; we are less able to retain thin or fluid stools than solid ones. There is great variety in the intervals at which different persons evacuate their bowels. The most usual and healthy period is once in twenty-four hours, but some persons do it only every second day; others once a week. The regularity of the bowels also depends much on habit, and it is of great benefit to solicit nature at a certain time; when this habit is established, the inclination will generally return at the usual hour.

The ordinary time required for the complete digestion of the food received into the stomach during a healthy state of the organ, is from three hours and a half to four hours. The facility of digestion, however, as already remarked, is modified by a variety of circumstances, as idiosyncrasies, habit, mode of life, the nature of the food and the manner in which it is prepared. Minuteness of division of the aliment and tenderness of its fibre, would appear to be the two great essentials for its

speedy and easy digestion. The white of an egg or any other purely albuminous fluid, if taken into the stomach either very slightly or not at all coagulated, is perhaps as rapidly chymified as any species of aliment. If, however, it be converted into a hard coagulum by heat or otherwise, and swallowed in large solid pieces, its digestion will be very slow and difficult. The same is true also of flesh and jelly; if tender and finely divided, they are readily converted into chyme; if in large and solid masses, their digestion will be proportionably retarded. Solid aliment generally speaking, is sooner disposed of by the stomach than that which is fluid: vegetable aliment is for the most part slower and more difficult of digestion than animal; its solution in the stomach is greatly influenced, however, by minute division and tenderness of fibre. Crude vegetables often pass through the lower orifice of the stomach in an unchanged state, while other food is retained and fully digested. Moderate exercise immediately after eating conduces greatly to the perfect and rapid digestion of the food. Severe and fatiguing exercise, however, always retards digestion.

HUNGER.

Hunger is the well-known sensation which is experienced when the stomach is in a healthy condition, and has remained empty for some time. This sensation does not depend on mere emptiness of the stomach; for in various diseases the stomach remains long empty without the sensation being produced; and hunger is allayed in various ways, although no food has been taken. If the usual time of eating is passed, it is not uncommon for the feeling of hunger to go off; and it is quite a familiar occurrence to have the appetite spoiled by the communication of bad news. A narcotic substance applied to the stomach removes the sensation of hunger. The juice of tobacco will have this effect in those who are not accustomed to it. Ardent spirits also take away the appetite of those

who are not used to them. Hunger does not seem to recur till the aliment already thrown in has been assimilated in the body. It does not, therefore, appear to have a particular reference to the state of the stomach, and in some diseases of the glands through which the chyle passes, the appetite is never satisfied, though there is plenty of food in the stomach. Excessive and voracious appetite may depend sometimes on a morbid state of the pylorus, by which the food is allowed to pass out of the stomach before it is changed into chyme. The inference drawn from the above facts by Dr. Paris, one of the latest writers on digestion, is, that the several processes by which aliment is converted into blood cannot be performed at the same time, without such an increased expenditure of vital energy as weak persons cannot, without inconvenience, sustain, and that proper time should be allowed for the food to go through all its changes; that the stomach should not be set to work during the last stages of digestion, otherwise the processes will, in weak persons, be much disturbed. It is a well-known fact, that if a person be interrupted in his meal for a quarter of an hour, he finds, on resuming it, that his appetite is gone, although he may have not eaten half the quantity which he required. This is explained by supposing, that during the suspension of the meal, the food had entered on its ulterior changes, and that the energies of the stomach had therefore declined. The subsidence of appetite is not produced by the quantity, but by the quality of the food; thus showing, that it is not the mere volume of the aliment alone that is necessary to pacify the cravings of the stomach. At the same time, it is equally true, that a certain bulk must be introduced into the stomach for the purposes of good digestion; and hence, even the most nutritive soups must have some solid or bulky vehicle or accompaniment, when they are taken into the stomach. Besides the peculiar sensations referred to the stomach, when a person is hungry,

other symptoms at the same time occur in the constitution. There is a universal lassitude, a sensation of pressure at the pit of the stomach, and much air is heard passing from one part of the intestines to another. When a certain quantity of food has been taken in, the feeling of weariness gives place to that of renewed strength, and all the other phenomena of hunger cease.

THIRST.

Thirst is that instinctive feeling by which we are admonished of the necessity of taking liquids into the system, to repair the waste of fluids which the body has sustained, and to assist in the solution of the aliment. Hence, we are thirsty after excessive perspiration, and after the use of dry and salt food. The state of the stomach, and its contents, have much influence on thirst. It is also caused by nervous sympathy, as in severe pain, or great terror. This sensation appears to reside in the throat and fauces; but it is not always connected with dryness of these parts; as, in many cases, the tongue is perfectly dry, while little thirst is felt. In such cases, drink should be frequently offered, although the patient does not ask for it. Thirst is borne with much greater difficulty than hunger. It is evidently much under the power of habit: they who frequently indulge in drink, increase their craving for fluids. Children should not therefore be suffered to take drink every time they demand it, if the demand be very frequently repeated. Thirst is morbidly increased in fevers and other diseases; it is then best relieved by barley water, toast water, or the vegetable acids, or fruits.

SECTION VI.

ABSORBENTS AND ABSORPTION.

THE absorbents are small transparent vessels, extensively diffused throughout almost every portion of the body, and furnished with numerous valves. Their uses in the animal econ-

omy are of the most important nature. From the alimentary matter in the intestines, they select, as we have already seen, a nutritive fluid, called chyle, and convey it towards the heart, to be converted into blood. The absorbent vessels, destined to this office, are called lacteals. Another set of absorbent vessels take up those particles, which have become useless in any of the organs, and convey them into the mass of circulating fluids, from which they are ultimately separated, and removed out of the body. The bones themselves afford evidence of the action of these vessels, as their component particles are continually changing throughout life. Absorbent vessels are particularly numerous in the glands, and very probably are concerned in effecting the phenomena of secretion. The fluids which are furnished for lubricating the joints and muscles, and for moistening the several cavities of the body, are continually renovated by the absorbent vessels taking up what is already effused, while the arteries are constantly furnishing a new supply. It is by the absorbent vessels that medicinal substances, applied to the surface of the body, are taken into the system; they also introduce various acrid and poisonous substances, as the matter of small-pox, or of cow-pox, and the poison of certain reptiles. It is these same vessels that carry off the effused blood and other fluids, which give rise to the black and blue appearance of a part on which a stripe or blow has been inflicted. The absorbent vessels which do not carry chyle, are ranked under the general name of *lymphatics*.

Through the skin, absorption is effected with great difficulty under its ordinary state of health; but when the outer skin, or cuticle is removed, there is no longer any impediment offered. Of the manner in which absorption is effected, we know nothing. Besides the absorbent vessels, properly speaking, it is more than probable that absorption, from the inner surface of the intestines, at least, is also a function of the minute veins. In the act of absorp-

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tion, the substances taken up by the vessels sometimes undergo no change, but are conveyed into the blood in the same state in which they enter the mouths of the vessels; in other cases, they are completely transformed from their first condition, previously to being taken up by the absorbents. Liquors can also pass into the blood, directly through the coats of the vessels.

All the absorbents of the body pass through certain glands, which are connected with them. When they approach these glands, they send some branches to neighbouring vessels; other branches pass over the surface of the glands, and others enter their substance, in which they are so minutely divided as to escape observation. A great number of these glands are placed at the upper part of the thigh, belonging to the absorbents of the lower extremity; others are placed under the arm, belonging to those of the upper extremity; and there are similar glands about the neck, and in various other parts of the body.

NUTRITION.

Nutrition is that function by which new particles are separated from the blood, to supply materials for the growth of the body, and to repair the waste which is continually going on in the different organs. In other words, it is that process by which each structure in the body receives from the blood, and assimilates to its own nature, certain particles, while, at the same time, the absorbent vessels remove from it a part of the materials of which it was previously composed. This process takes place in the tissue, denominated capillary. How it is effected it is impossible to determine. The conversion of the blood into particles of bone, muscle, brain, &c., would appear to be due to an action of the minute vessels, somewhat similar to that which produces the secretions, while the removal of the old parts is a process which bears some analogy to digestion, the particles being reduced to their simple elements, and again united in the form of lymph, which is the only fluid apparently that

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the absorbents contain. It is during youth that the process of nutrition is the most rapid, the new matter deposited being then also in much greater proportion to the old materials that are removed by absorption. In after life, the two processes, that of deposition and absorption, are nearly balanced, though disease and abstinence may cause the latter to be in excess, while certain irritations, and the exercise of particular parts, may give a greater activity to the first. All those causes which tend to increase the general vigour and health of the system, cause the function of nutrition to be carried on in a regular and perfect manner.

SECTION VII.

CIRCULATORY APPARATUS.

THE circulatory apparatus consists of the heart, the arteries, and the veins.

THE HEART.

The heart of man, and of the more perfect animals, is composed of two parts, one of which is destined to propel the blood into the lungs, and the other to distribute it to the system at large. The heart is contained within the *pericardium*, a strong membranous bag, smooth, and lubricated by a serous fluid on the inside, having its inner lamina reflected over the heart itself. The heart is situated obliquely in the middle of the breast; its posterior surface is flat, and lies upon the diaphragm: its apex is turned forwards, and towards the left side, so that, in the living body, it is felt striking between the fifth and sixth ribs, a little towards the left side of the breast-bone. The pulmonic part of the heart is composed of an *auricle* and a *ventricle*. The auricle is a muscular bag, very thin, and having a dark appearance, from the dark venous blood which it contains shining through its coats. Into this cavity, the two large veins, which have collected the blood from the upper and lower parts of the body, empty themselves; the auricle, contracting, sends this blood into the

right ventricle, which propels it through the pulmonary artery into the lungs. There circulating in innumerable vessels which cover the cells of those organs, and being exposed to the influence of the air we breathe, the dark purple hue of the blood is changed to a bright scarlet colour; the blood also loses the noxious properties it acquires by flowing through the system, and becomes again fitted to circulate and nourish the system as before. The blood proceeds from the lungs by four vessels into the *left* auricle, which, like its fellow, is a muscular bag that contracts and sends the blood into the left ventricle, by which it is sent into the aorta, and by its branches distributed throughout the body. To prevent the blood from regurgitating, and to keep it flowing in the proper direction, both the auricles are furnished with valves, or little membranous folds, which allow the blood to pass one way, but are accurately closed when any of it attempts to pass in the opposite direction. At the mouths of the pulmonary artery and of the aorta, there are also valves, for the same purpose. The valves of the right auricle are called the tricuspid valves, those of the left the mitral; those at the beginning of the arteries are called semilunar valves. The walls of the various cavities of the heart are strong and muscular, and are furnished with bundles of muscular fibres, which pass from one part of them to another, and which, independently of our will, contract when they receive the stimulus of the blood. When the auricles are fully distended by the returning blood, they throw it into the ventricles; which, when they are filled, throw the blood into their respective arteries. The contractions are called the systole, and the dilatations, the diastole of the heart. The beating of the pulse corresponds with the force and frequency of the movements of the heart. This astonishing organ contracts and dilates upwards of a hundred thousand times in a day, and can continue its action unimpaired and unwearied for seventy or eighty years.

THE ARTERIES.

The arteries are long, hollow, pliable elastic tubes, which commence at the heart, and convey the blood by their innumerable branches to every part of the body, to supply materials for the nutrition and support of all. They are composed of three coats; a very smooth coat internally, a central coat, supposed by some, to be muscular, and a firm cellular coat externally. The arteries are supplied with their proper blood-vessels, nerves and lymphatics. Their arteries do not come from the vessel they supply, but from the contiguous vessels. The term *artery*, which signifies air-holder, was applied to these vessels by the ancients, who, finding them empty, after death, and being ignorant of the circulation, supposed their office to be that of containing air. By the arteries, the blood is conveyed from the heart to every part of the body, for the purpose of nutrition, of secretion, and for the preservation of animal heat. The blood contained in the arteries is of a bright vermilion red. By successive ramifications, arteries gradually diminish in size, until they are, finally, extremely small. The smallest arteries do not carry red blood, their diameters being smaller than those of the red particles of that fluid; the serous, or watery part of the blood only, therefore, can pass through them. At the commencement of the two great arteries; the one which conveys the blood from the heart to the lungs, and that which transmits it, after undergoing the necessary changes in the latter, to every part of the body, are placed valves, to prevent any retrograde movement of the fluid. The different branches of the main artery communicate frequently with each other; this is termed *anastomosis*. In some parts, two branches proceeding in nearly a similar course, unite at an acute angle, and form one common trunk. Sometimes, a transverse branch runs from one to the other, so as to form a right angle with each other. In other cases, the two anastomosing branches form an arch from

which many branches are given off. The course of the arteries, throughout the body, is obviously calculated to prevent their exposure to injury, and from pressure, or too great stretching by the bending of the joints over which they pass. To this end, they sometimes proceed in a winding course; and when they pass over parts which are subject to great distension, as the cheeks, often meander, which enables them to be lengthened without putting them on the stretch. The pulsatory motion observed in the arteries, during life, is the effect of the elasticity of their coats, which enables them first to be distended when the blood is forced into them by the heart, and then to contract upon the blood, and force it onwards from the heart: the pulsation of the arteries corresponds exactly with the motions of the heart. The blood conveyed from the latter by the arteries, after supplying materials for the growth and nutrition of the system, and for the various exhalations and secretions, is taken up by the minute roots of the veins, and by the latter vessels is again returned to the heart. Arteries are liable to inflammation, to ossification, and other alteration of their structure, and to aneurism.

The pulse.—The pulse consists in the alternate contraction and dilatation of the heart and arteries, by which contraction, aided by the force of the heart, the blood is propelled through every part of the body. As the beats of the arteries correspond with the motions of the heart, we judge, by the pulsation of the arteries, of the state of the circulation, and from this we derive many important indications in disease. The frequency of the pulse, in health, is about 72 beats in a minute, or it ranges between 60 and 80; but in some individuals it is slower, without any derangement of the health. The pulse is quicker in women than in men; it is quicker in the sanguine than in the melancholic temperament; in youth, than in age. The pulse of an infant in the first days of its life, is from 130 to 140. During the first year, it is from

108 to 120. From the state of the pulse, taken in conjunction with other symptoms, we judge of the existence of inflammatory complaints, of the state of debility, and of the effects of certain medicines. In feverish complaints, it rises to 100, 120, 168, or even to be uncountable. In certain diseases, as water in the chest, it intermits and becomes irregular, and the same effect is produced by the use of the foxglove. In some persons the pulse is naturally intermitting, in others it intermits from disorders of the stomach and bowels, and also from emotions of the mind. The artery generally chosen to ascertain the state of the circulation, is the radial artery, where it is superficially seated at the wrist; but when this is inconvenient, either the temporal artery, or that at the corner of the lower jaw, may be taken. In feeling the pulse, some attentions are requisite. In many, the circulation is quickened by any mental agitation; and, therefore, the entrance of the physician, or his questions and remarks on the patient's case, may quicken the pulse, which should be felt, therefore, both at the commencement and termination of the visit. The pulse also varies, according as the individual is in an erect, sitting, or recumbent posture.

THE VEINS.

The veins are those tubes or canals which return the blood from all the different parts of the body to the heart. They have the same structure as the arteries, but their coats are thinner, less elastic, and more flaccid; hence, when empty of blood, they collapse. The veins, besides the valves at their openings into the heart, have others along their course, especially the veins running upon the limbs. The blood in the veins is of a dark purple colour, and no longer fitted for the support of the different organs. The veins have no pulsation like the arteries. The veins commence by very minute radicles within the texture of every part of the body; these, uniting, form larger

branches, which finally unite in the main venous trunks, which proceed directly to the heart. The veins may be arranged in four classes. The first bring the blood from the head and upper parts of the body, and uniting into one trunk, the *superior cava*, enter the right auricle of the heart, from above. The second carry back the blood from the lower parts of the body, and uniting into one trunk, the *inferior cava*, enter the same cavity of the heart, from below. The third class are the *pulmonary veins*; these commence in the substance of the lungs, and differ from the other veins, in carrying bright scarlet, or arterial blood, instead of venous. They unite into four branches, two for each lung, and enter the left auricle of the heart. The fourth class are the veins which convey back the blood from all the digestive organs, except the liver, and uniting into one trunk, the *vena portarum*, pass to the lower part of the liver, and are distributed throughout the substance of the latter, affording to it the blood from which the bile is secreted. The blood is then transmitted to the ramifications of the *hepatic vein*, which is a branch of the inferior cava.

THE CAPILLARIES.

The ultimate ramifications of the arteries are supposed to constitute a tissue of vessels of extreme minuteness, distributed throughout every portion of the system, with the exception of the nails, cuticle and hair. These minute vessels are called capillaries, and the whole of them together form the capillary system. In many situations, these vessels are so very small that they will not, in their healthy state, allow of the red particles of the blood entering them; hence, the parts to which they are distributed have naturally a white appearance. In the capillaries, it is believed by many physiologists, that the blood is placed entirely beyond the influence of the heart and general circulation; its movement in these vessels being effected by their own action. This opinion is supported by many very plausible

ble arguments. The capillary system constitutes a highly important part of the animal body; by it are exclusively performed the functions of nutrition, or the deposition of materials, adapted to the growth and support of the different organs; that of calorification, or the production of animal heat, and that of secretion, or exhalation, by which certain fluids are separated from the blood. It is in the capillaries also that inflammation, and nearly all the diseased actions of the organs, have their seat.

THE BLOOD.

The blood is a red fluid, of a saltish taste, and urinous smell, which circulates in the heart, arteries, and veins. The blood is the most important fluid in the animal body. It furnishes the materials from which the various parts of the body are supplied with nourishment; it is the fluid from which the secretions are formed; it is the source of animal heat; it stimulates the heart to contraction; and, by its presence in the blood-vessels, it distends them, and gives plumpness to the body; and by shining through the transparent skin, causes the fine complexion, and the shades of colour, which impart so much beauty and interest to the healthy human countenance.

Many calculations have been formed of the total quantity of blood in the body; but as the data upon which they have proceeded are extremely uncertain, so the conclusions have been widely different; and, of course, the greatest part of them remote from the truth. Perhaps, upon the whole, the estimate, which would seem the nearest approximation, is that of Haller, who supposes that the blood may constitute about one-fifth of the weight of the adult body, the proportion of the fluid being greater in youth, and diminishing as age advances. A body weighing one hundred and fifty pounds, would, therefore, contain about thirty pounds of blood, and of this, it is supposed, that three-fourths or more are in the veins, and one-fourth only in the arteries.

The blood in one portion of the heart is of a bright, florid red colour, and is driven by the contraction of this powerful organ into the arteries. When the red blood has reached the extremities of the arteries, it is conveyed into veins, by which it is brought back to the heart. The blood in the veins differs in colour from that in the arteries; it is now dark coloured, and incapable of furnishing materials for nourishment or secretion, with the remarkable exception of the venous blood from the intestines, which, circulating through the liver, is employed in the secretion of bile. The blood which has circulated through the body, and been employed in nutrition and secretion, is unfit for performing a second time the same functions; and in order to repair its salutary powers, and again render it fit for the purposes of the animal economy, it is made to pass through the lungs; in which organs, by admixture with the chyle and the action of the air, it loses its dark venous colour and injurious properties, and is again fitted, in the state of florid arterial blood, to impart life and vigour to the animal system.

Blood, when it is first drawn from the body, appears to be a uniform fluid; but, by being allowed to rest, it spontaneously separates into two parts, viz: the *crassamentum*, or cake, and the *serum*, or watery part, besides a vapour which exhales when the blood is warm at its first drawing off. The *crassamentum* is thick, and like jelly; it soon becomes putrid; it is insoluble in water. The surface of the *crassamentum*, exposed to the air, is of a more florid red colour than that which is deeper in the dish, and not exposed to the air. The red globules may be washed away, and they leave what is called the fibrine of the blood. The other part of the blood is the serum, a lymphatic, or watery fluid, with little smell, saltish to the taste, of a yellowish green colour. When blood is drawn from the body, while under the influence of inflammatory disease, the *crassamentum* is covered with a tough leather-looking sur-

face, of various depths, from the thickness of a shilling to a quarter of an inch, known by the name of the *buffy coat*. The appearance of this buffy coat, in conjunction with other circumstances, gives a very good indication of the inflammatory state of the system. Sometimes this appears cupped in the middle, drawing the upper part of the crassamentum from the sides towards the centre. The blood frequently puts on a similar crust, in the state of pregnancy.

THE CIRCULATION.

In man, and the more perfect animals, the blood is transmitted from the heart to every part of the body, and is returned again to the heart in a regular current. No portion of the blood can approach the same part of the body a second time, without first passing through the lungs and heart; this is called the circulation of the blood. It is performed in the following manner: the left chamber, situated within the body of the heart, by contracting, throws the blood into the aorta, or main artery of the body; the orifice of this artery is furnished with valves, by which the blood is prevented from passing back into the heart, but by the successive contractions of the latter, and the force impressed upon it by the elastic coats of the arteries which are distended on its entrance, the blood is forced onwards through all the branches and ramifications of the arteries, into the capillary system, where it furnishes nourishment to every portion of the body, contributes to the evolution of animal heat, and furnishes the materials of the various secretions; at the same time, changing in colour, from a bright scarlet to a dark red, or modena hue. It is now taken up by the minute veins, which, gradually enlarging and uniting as they proceed, form, finally, two large trunks; one returning back the blood from the lower portions of the body, the other from the head and upper extremities. These large veins empty the blood into the right chamber at the basis of the heart; the contrac-

tion of this chamber sends the blood into the chamber of the heart, immediately beneath it, within the body of the organ, from whence it is prevented passing back by valves. The right ventricle, contracting, propels the venous blood, with which chyle has been previously mixed, in the manner already explained, into the pulmonary artery, the orifice of which is likewise furnished with valves, to prevent the blood from flowing backwards. The pulmonary artery proceeds to the lungs, into the substance of which it minutely ramifies by numerous branches, and distributes the blood it carries throughout the capillary structure spread over the lining membrane of the air cells. Here it is exposed to the action of the air, by means of the oxygenous portion of which, certain changes are produced in it, by which it is rendered fit again to be sent to the various parts of the body. From the lungs, the blood, thus changed, is brought back by two pulmonary veins from each lung, into the cavity at the basis of the heart, on the left side; this contracting, transmits it into the chamber in the substance of the heart, immediately below, to be once more propelled into the aorta. The same circuit is perpetually repeated, so long as life exists. The circulation of the blood through the body, lungs and heart, may be represented by the figure 8, the junction of the two circles representing the heart, the upper and lesser one of the pulmonary circulation, and the lower the circulation through the rest of the body. In a healthy adult, the heart performs between seventy and eighty contractions in a minute. The pulse is dependent upon the action of the heart, and is an index of the number, force, and succession of its contractions. The blood is driven through the whole extent of the arteries by the action of the heart; its return by the veins is assisted by the valves with which these are supplied, opening towards the heart, and by the pressure exerted upon them by the muscles beneath and through which they pass.

SECTION VIII.

RESPIRATORY APPARATUS.

The respiratory apparatus consists of the windpipe and bronchii, and the lungs; together with the respiratory muscles, the intercostals and diaphragm.

THE WINDPIPE.

The windpipe, or trachea, is a tube commencing at the back part of the throat, behind the tongue, and passing downwards on the fore part of the neck, it divides in the thorax into two branches, one of which proceeds to each lung. The upper portion of the trachea is called *larynx*, and the two branches going to the lungs, *bronchii*. The trachea is composed of a number of rings, the fore part of which is cartilaginous, the back part membranous; internally the trachea is lined by a mucous membrane. Its use is to convey the air to and from the lungs, in the act of respiration.

THE LARYNX.

The upper part of the windpipe. It is a hollow tube, composed of cartilages, muscles and ligaments, situated behind and below the tongue, at the anterior part of the neck. The opening into the larynx, is called the *glottis*. Five cartilages enter into the formation of the larynx; at its base is a cartilaginous ring, by which it is connected below with the windpipe; this is shallow before, but deep behind; before and above this cartilage is another, shaped like a shield, which forms the large prominence in the fore part of the neck, called, vulgarly, *Adam's apple*. Between these two a small vacancy exists, only closed by membrane, which can be felt with the finger. The other two cartilages are small pyramidal bodies, articulated posteriorly, on each side of the ring-shaped cartilage; to these are attached one extremity of the ligaments which form the glottis, which they cause to approach, or separate from each other laterally by the action of muscles. The larynx is principally concerned in the formation of the voice.

THE BRONCHII.

The trachea, after it has passed a certain distance within the chest, divides into two large branches which penetrate into the substance of the lungs, and are again subdivided, until they finally terminate in the air cells. It is to these branches of the trachea, and their subdivisions, that the name bronchii is applied. They are composed of cartilage, and a very elastic membrane, and are lined with a mucous coat. The bronchii are subject to inflammation and ulceration.

THE LUNGS.

The lungs are the principal organs of respiration. They are elastic bodies, situated, one on each side of the heart, within the cavity of the chest. They consist of the ramifications of the bronchii, terminating in minute vesicles, called air cells. These vesicles have extremely thin coats, and on these coats are distributed the minute ramifications of the blood-vessels which go to the lungs. It has been computed, from the extreme minuteness of the air-vessels, that the internal surface of the lungs is not less extensive than the floor of a moderate sized sitting room. These air-vessels communicate with each other through the whole substance of each lung, so that by inflating one lobule, the air passes into the rest. The right lung, which is the largest, consists of three lobes; the left, only of two; all of these are subdivided into a number of smaller lobes, called lobules. These divisions are connected to each other by the intervention of cellular substance.

The lungs are connected above to the neck by means of the windpipe, and below, by blood-vessels to the heart. They have no other covering but the pleura, connected to them by the intervention of thin cellular substance, which, in this part, is always free from fat.

The colour of the lungs is in infants reddish; in adults, grayish, and in old age they verge towards dark blue, or black; their surface is usually mottled.

All the blood of the body, brought back from the different parts by the veins, passes through the lungs, in order to be there exposed to the influence of the atmospheric air, and to undergo a change, by which it becomes again adapted to be circulated to the different organs, for the purposes of nutrition, &c.

An organ of so much importance as the lungs, so much exposed to the influence of the atmosphere, so closely connected with the heart, so abundantly supplied with blood, and of so delicate a structure, may be easily supposed to be liable to very numerous diseases, and those of the most dangerous kind. In fact, a large number of the most frequent and fatal of the diseases, to which the human body is liable, are seated in the lungs.

RESPIRATION.

Respiration is that important function performed by the lungs and auxiliary organs, by which we constantly draw in and breathe out air, for the purpose of producing certain changes in the blood, which is subjected to the action of the air in the lungs. This is one of the vital functions, which begins at the moment of birth, and ends only with life itself; which can not be suspended even for a very short period, without great uneasiness and danger. The number of respirations in a minute, differs in different individuals. The average number in a healthy person is about twenty; but in disease they may amount to double that number. Respiration differs from the circulation, in being in some measure under the government of our will; as it is subservient to the formation of speech, it can be rendered deeper, and more or less quick, as we wish it. During sleep, it goes on, independent of us; and though the mouth be shut, the air finds its way to the lungs by the ever-open passage of the nostrils. The motions of respiration consist of an alternate contraction and dilatation of the chest. When the chest is expanded, a vacuum is formed in the lungs, and the air rushes in. The dilatation of the chest is ef-

fectuated by the action of the two layers of muscles that extend from one rib to another, and which elevate the ribs, and also turn them a little on their own axis; but still more does the diaphragm contribute to this expansion, by changing its position from being convex towards the chest, to a flattened form. In strong efforts of inspiration, and in diseases of the chest, other muscles are brought into action, especially those of the back and shoulders; and this is one reason why the shoulders of consumptive and asthmatic patients are generally raised. The contraction of the chest, or expiration, is effected by the action of the abdominal and other muscles, assisted by the elasticity of the cartilages interposed between the ribs and the breast bone, which, during the expansion of the chest, becomes slightly twisted.

It is not every species of air that is fit for respiration. Some gases we can not breathe at all, as the epiglottis shuts at their approach, and will not admit them. Such are the carbonic acid, and probably all the other acid gases, and ammonia. Some gases kill by preventing the entrance of proper air; such are hydrogen and azote. Others instantly kill, but at the same time produce some change in the blood, as carburetted hydrogen, and carbonic oxide. Some may be breathed for a while, but death ensues at last, as in the case of oxygen and nitrous oxide. Atmospheric air alone can be breathed for an unlimited time with impunity. It is the oxygen which enters into its composition, that fits it for the support of animal life. This oxygen, too pure and too stimulant to be breathed alone, when combined in the proportion of twenty-one parts in the hundred to seventy-nine of azote, constitutes the salutary mixture which is necessary to respiration.

The capacity of the chest, the quantity of air taken in at each inspiration, and that remaining after complete expiration, have been differently estimated. Dr. Bostock, whose *Essay on Respiration* has obtained high approbation from the best chemists, thinks that about forty

cubic inches of air are taken in at each inspiration; that the lungs in their natural condition contain about two hundred and eighty cubic inches; and that about one hundred and nine cubic inches remain in them after an ordinary expiration.

The changes produced on the atmospheric air by breathing, are the following: 1. Part of the oxygen of the air inspired disappears. If an animal be confined in a limited portion of air, and if this air be not renewed, it becomes, after a certain time, unfit for being breathed, and the animal dies. When chemically examined, the air is found to have lost its oxygenous portion. 2. A quantity of carbonic acid gas, exactly equal to the oxygen which has disappeared, is found in its place. The disengagement of carbonic acid during respiration, is easily seen by breathing through a tube into lime-water; which, from being perfectly clear, becomes muddy, in consequence of the chalk which the carbonic acid forms with the lime. 3. The air breathed is returned loaded with watery vapour, which is calculated to amount to nearly twenty ounces in a day.

The principal use of respiration being to effect certain changes on the blood, it becomes an important subject to ascertain what these changes are. The whole of the blood circulates through the vessels of the lungs, and during that circulation, it is exposed to the influence of the air which is constantly drawn in. The space over which the air vesicles extend in the lungs, is believed to be at least equal to the surface of the body. The venous blood which has circulated through the system is of a dark purple colour; and into one of the veins, shortly before it enters the heart, the chyle prepared from the food is poured. By circulating through the lungs, the blood acquires a florid red colour, and the chyle disappears, being, in some way as yet unknown, converted into blood. A considerable quantity of carbon is abstracted from the blood during respiration, and water also is emitted.

Another most important use of respiration, though not a vital one, is *the formation of the voice* of man, and of other animals. It is for this purpose, that respiration is partly a voluntary function; the air being transmitted through an aperture, varying in its shape and size, produces a sound, which, being in man directed by reason, and modified by the tongue, the lips, the teeth, and neighbouring parts, produces all the variety of articulate sounds, by which we communicate our ideas to one another. Laughing and crying, sobbing and hiccup, are modifications of respiration.

The disorders of respiration are of great importance, and many other diseases of different parts, cause respiration to be affected by sympathy. The disorders of respiration are asthma, pleurisy, cough, &c.; and in fever, dropsy, and many other diseases, the respiration also suffers, although in the cure of these, we are not to consider, in the first place, the state of respiration, but the original disease.

ANIMAL HEAT.

It is well known that all inanimate substances acquire, more or less rapidly, the temperature of the air, or of other bodies with which they are in contact; becoming hot or cold, according to the condition in regard to heat of the latter. Man, however, in common with all the warm-blooded animals, possesses a temperature of his own, which is independent, to a certain extent, of that of the medium in which he is placed. Thus, in those climates and seasons of the year, when the temperature of all inanimate substances is reduced below the freezing point, when vegetation is checked by the cold which prevails, and the cold-blooded animals, generally, are rendered torpid; the human body, and those of other animals with warm blood, still maintain the degree of heat which is necessary to their comfortable existence; while, on the other hand, during the intense heat of summer, and in tropical climates, they are enabled

to resist the external heat, and thus to remain very nearly at the same degree of temperature, whether that of the air, by which they are surrounded, is intensely cold, temperate, or excessively hot. This equal temperature, which is produced and maintained by a vital process, is denominated *animal*, or *vital*; and in the human subject, is about 98° of Fahrenheit's thermometer.

The manner in which animal heat is generated and equalized, is a subject which has long occupied the attention of physiologists. The explanation, which, until a late period, was very generally adopted, was that of the chemists. By this the production of heat in the animal body was referred to a species of combustion, connected with the changes the blood undergoes in the lungs, and its subsequent conversion into venous blood in the course of its circulation. It is unnecessary to enter here into any exposition of this hypothesis; for however plausible it may appear, it is surrounded with too many difficulties, and opposed by such a mass of facts, that it can no longer be received as correct. All we know, for certain, in relation to the production and maintenance of animal heat, is, that it is a vital process, in which enervation, or the action of the nervous system, respiration, and the circulation of the blood, are jointly concerned.

That enervation is necessary to the production of animal heat, is shown by the fact, that if the brain and spinal marrow, or either of them be destroyed, or their functions suspended, or greatly depressed, the evolution of animal heat is likewise destroyed, suspended, or impaired, and the temperature of the body quickly sinks to that of the surrounding air. If, likewise, the connection of any part of the body with the nervous centres be destroyed, or impeded by disease, or by the division, or compression of the nerves which proceed to it, its power of maintaining and regulating its temperature is destroyed. Thus, limbs labouring under palsy are less warm than the other parts of the body. The necessity of respiration to

the production of animal heat, is proved by the circumstance that whatever impairs the functions of the lungs, reduces, also, the temperature of the body; which latter bears always a close relation to the capacity of the lungs; the freedom of the respiratory process, and the purity of the air inhaled. Mr. Edwards has shown, that the higher the temperature of an animal's body, the less can it bear the privation of air; while such privation causes, comparatively, little inconvenience to cold-blooded animals; young animals, likewise, are less affected than the adult. He has also remarked that the greater the temperature of an animal, and the nearer to the adult age, the greater the consumption of oxygen; that if, in summer, less heat is evolved than in winter, it is also true that during the former season less oxygen is consumed in the lungs than during the latter. That a free circulation of blood is essential to the production of animal heat, is proved by the latter being increased by whatever increases the activity of the heart, and of the minute vessels, called capillaries, and vice versâ; as well as by the reduction which takes place in the temperature of a part where the principal blood-vessels going to it are tied, or in any other manner its circulation is destroyed.

The production of animal heat, in common with all the nutritive functions of the system, is effected in the capillary vessels, and hence it takes place throughout every part of the body. This explains the possibility of the difference which exists in the temperature of different parts of the body, and the capability of one part having its heat increased or diminished, without the temperature of other portions of the body being affected.

The power which the human body possesses, naturally, of maintaining a temperature many degrees above that of the surrounding atmosphere in winter, is aided by many circumstances. Thus, the integuments by which the body is enveloped, viz: the skin and cellular membrane, are bad conductors

of caloric, and hence prevent, in a great degree, the escape of the heat which is generated within. The greater density of the air in winter, causes a larger consumption of oxygen by the lungs; the change which the blood undergoes in the latter, is consequently more complete and rapid. The process of digestion, during cold weather, is likewise more active, affording a more rapid and rich supply of nutritive principles to the blood; this causes the functions of nutrition and circulation to be carried on with augmented energy.

The resistance which the human body is enabled to present to the influence of high degrees of temperature, is likewise aided by various circumstances; but especially by the evaporation which is caused from an extensive surface of the body, in consequence of the profuse exhalation of a watery fluid which takes place from the skin and lungs.

SECTION IX.

SECRETION.

SECRETION is the process by which certain organs of the body separate or form, from the blood, various fluids which serve some end in the animal economy, or are removed from it as excrementitious.

There is no function of the body which is more calculated to excite our astonishment and admiration than that of secretion. By it we see separated from the blood, a variety of fluids, differing essentially in their physical properties and chemical composition. In one part are secreted fluids which dissolve the aliment, and prepare it for the nourishment of the body; in other parts, secretion furnishes fluids of the blandest nature, for lubricating the organs concerned in the various functions of the animal machine; in others again, the fluids secreted are possessed of very acrid properties, as is the case with the bile and urine. In some animals, the most powerful odours; in many, the most deadly poisons, and in all, that

wonderful fluid by which their race is perpetuated, are the products of secretion.

So far are we from discovering the nature of secretion, and the causes of the different properties of the fluids which are secreted, that we in reality know little more of this function, than the general outlines of the structure of the parts concerned in it. We see a gland, with an artery, vein, and excretory duct connected to it; but in what manner this structure separates from the blood fluids, so different in their properties from those of the former, is to us as yet a perfect mystery.

The term secretion is applied to the formation of those fluids which are subservient to some purpose in the animal machine; excretion, to the formation of such as are apparently of no particular use, and which seem to be separated for no other end than to be discharged from the body. It is difficult, however, to apply these distinctions to particular cases, since there is hardly one of these fluids, the production of which is not in some way useful, and but very few which may not be considered as, in some degree, excrementitious.

Both secretion and excretion are, in many parts of the body, performed by the minute ramifications of arteries opening on the surface of membranes, without the intervention of glands. Fluids, which are designed for the lubrication of passages, are very generally discharged into small bags or follicles, whence they are expressed, when their presence is most necessary.

Few of the secreted fluids are discharged from the body, exactly in the state in which they were first prepared, but gradually become more viscid or acrid; since, while they remain in the receptacles destined for their preservation, their more watery parts are continually taken away by the action of the absorbents.

THE GLANDS.

Glands are organs destined for the secretion of particular fluids from the

blood. They are either simple, or composed of a congeries of smaller glands, and are distinguished according to the fluid they secrete. They vary in structure, and in size from that of the liver, to a point not larger than a mustard-seed. The hard knots or swellings which are seen and felt beneath the skin of the neck, groins and arm-pits, are glands. Glands are believed to be particularly predisposed to that species of inflammation, which ends in schirrus and cancer; they are also in scrofulous constitutions subject to enlargement and suppurations, and are the seat, when the abscesses produced by the latter break, of large, unhealthy looking sores, difficult to heal.

Conglobate glands are round glands, formed of a collection of lymphatic vessels, connected by cellular substance, having no cavities or excretory duct. The glands of the groin, arm-pit and mesentery, are of this description.

Conglomerate glands are those composed of a number of smaller glands, connected together by cellular membrane, the ducts of all of which unite into one common tube. The glands that secrete the saliva, also the pancreas, and glands of the female breast, are of this kind.

EXHALATION.

The separation of certain fluids from the blood, without the intervention of a glandular apparatus, is termed *exhalation*, and the peculiar structure by which the separation is effected, is termed the exhalants. In what this structure consists, however, we are ignorant. Whether the fluids penetrate through pores in the sides of the vessels, are given off by their extremities, or by particular vessels destined to this office, is unknown. The exhalations are generally in the form of vapours, which condense upon the surfaces to which they are destined. This is the case with the fluid which lubricates the various cavities of the body, that given off by the skin, and the fluids which fill the cells of the cellular membrane.

SECTION X.

THE URINARY APPARATUS.

THE urinary apparatus consists of the kidnecs, ureters, bladder, and urethra.

THE KIDNEYS.

The kidneys are two organs of a pale red colour, and firm consistence, in form resembling the beans which bear the same name. They are placed behind the cavity of the abdomen, without the peritoneum, on each side of the spine, and extend across the two lowest false ribs as far as the bottom of the second lumbar vertebra. The length of the kidneys is about six inches. their breadth about four. Of the two margins of the kidneys, that which is placed outwards is convex, that placed inwards, concave.

The kidney is made up of three different substances; first, an external part of a pale colour, which chiefly consists of numerous convolutions of blood-vessels, and is called the cortical part. The other two substances, that is the medullary, or striated, and the papillary, are really but one and the same mass, of a redder colour. The radiated striæ and tubes which are continued into the papillary portion, where they terminate in about eleven or twelve papillæ, corresponding with the number of glandular portions, of which the kidney is composed. At the point of each papilla we see with the naked eye, in a slight depression, several small holes, through which the urine may be perceived to flow when the kidney is compressed. Each papilla lies in a kind of membranous calix or sheath, which opens into a common cavity or bag, called the pelvis. The pelvis is also membranous, being a continuation of the calix. The kidneys are surrounded with a strong firm membrane, which is very closely applied about them.

The urine, which is secreted in the kidnecs, drops from the papillæ into the pelvis, from which a membranous ca-

nal, called the ureter, descends to the urinary bladder, to which it conveys the urine.

THE URETERS.

The ureters are canals about a span long. They are in general about the size of a writing pen, and are somewhat curved in their course from the kidney to the bladder, so as to resemble the letter *f*. They are furnished with several coats, one of which is muscular. They are very sensible, as is proved by the acute pain which persons, who are subject to the gravel, experience while the stones are passing through them. They descend behind the peritoneum to the urinary bladder. They enter the latter at the posterior part, near its neck, which is the most fixed point. They run some distance between the coats of the bladder, before they open into its cavity, and this structure has the effect of a valve, in preventing the fluid, when the bladder is very full, from returning towards the kidney.

THE BLADDER.

The urinary bladder is a membranous sac of considerable size. It is placed at the anterior part of the pelvis; when it is empty, it sinks below the upper part of the share bones, but when filled, rises considerably above them. The upper part of the bladder is called its fundus, which is much wider than where it terminates in its neck. Its general form is oblong.

The bladder, in men, is connected behind to the rectum, and before it is always attached by cellular substance to the share bones. It is also connected to the navel by ligaments, which are the remains of two arteries, which existed in the child before birth; and, as its fundus, it projects into the cavity of the abdomen. The bladder is also connected to the peritoneum, which covers part of its fundus.

The coats of the bladder are, first, a coat of cellular substance, by which it is connected to the neighbouring parts; 2dly, a muscular coat. At the neck

the muscular fibres cross each other, and in this manner form a sphincter, by which animals are enabled to retain the urine; while a continuation of the same fibres towards the fundus assists in expelling it.

The third coat of the bladder is like the cellular coat of the intestines. The inner coat has many foldings, and is plentifully supplied with mucus. The fundus of the bladder also derives a coat from the peritoneum. The uses of the bladder are to receive the urine, to retain it for a time, and to expel it through the urethra from the body.

THE URETHRA.

The urethra is the membranous canal leading from the neck of the bladder, along the lower part of the penis, through which the urine is discharged. It is lined internally by a mucous membrane, which is liable to inflammation, and becoming in consequence thickened at particular parts, it forms strictures, by which the discharge of the urine is more or less impeded.

THE URINE.

The fluid secreted from the blood by the kidneys, for the purpose of being thrown out of the body, contains a great many different salts, which have been very carefully examined by chemists. The principal of these are, urea, uric acid, salts of soda, of ammonia, lactic acid, &c. The purpose of the secretion and excretion of urine is to separate from the blood certain principles which, if retained in the body, would be hurtful; and to carry off certain portions of the aliments, which cannot be assimilated with the blood. In the urine, chemists can trace certain substances which exist in the blood, viz: water, lactic acid and its accompanying animal matters, the fixed alkalies, and lime. They also find in the urine certain substances formed by the action of the kidneys on some parts of the blood; the sulphuric and phosphoric acids, urea, and uric acid. Sometimes, from disease, the kidneys form too much acid, as the nitric and

oxalic acids; or their acidifying power is superseded, and they allow to pass unchanged, albumen, blood, sugar, or ammonia. In diseases of the inflammatory kind, the urine is small in quantity, and high-coloured; but in diseases of debility and irritation, as hysteria, the urine is pale-coloured, and large in quantity. The state of the digestive functions has a remarkable effect on the character of the urine. Much valuable information will be obtained in dyspeptic cases, by a careful examination of the urine; indeed, in the diseased state, very slight changes in diet will produce corresponding effects on the urine. When uric acid is deposited from the urine in a crystallized state, it is generally uncombined; but when it is deposited without any regularity of form, it is frequently combined with ammonia. There is uric acid in all urine; but, in the healthy state, it is kept in solution at all temperatures; when it is in excess, however, it subsides as the urine cools. This precipitation shows a derangement of the digestive functions; very slight errors in diet will occasion it in delicate constitutions. Sometimes in the urine, there is so much albumen that it coagulates on the application of heat. This is the case in certain kinds of dropsy, and whenever this takes place, there is a tendency to inflammatory action somewhere in the system. The urine is sometimes in enormous quantity, and of a sweet taste, yielding great quantities of sugar by evaporation. This state constitutes the disease called diabetes.

SECTION XI.

THE NERVOUS SYSTEM.

THE nervous system is composed of the brain, spinal marrow, nerves, ganglions and plexuses.

THE BRAIN.

The brain is the important organ contained within the skull, constituting the material instrument by which the

mind acts, and is acted upon. It is, in other words, the exclusive seat of the powers of perception and volition, and of the intellectual faculties. The human brain is divided into the *cerebrum*, or brain proper; the *cerebellum*, or lesser brain, and the *medulla oblongata*, or commencement of the spinal marrow. Besides the bones of the skull, the brain has a covering composed of three membranes, an external one which is very firm, and of a bright silvery appearance, termed the *dura mater*; an internal thinner and very vascular one, named *pia mater*, and between these is interposed the fine delicate membrane, denominated *tunica arachnoides*. The brain consists of a large pulpy mass, formed externally into numerous waved or convoluted furrows, being of a light reddish colour near the surface, but internally of a whitish or cream colour. It contains several cavities, and its substance is amply supplied with numerous small blood-vessels. The internal structure of the brain has been accurately studied, and minutely described by anatomists; but still these descriptions throw but little light upon the nature of its functions. The *cerebrum* constitutes the uppermost and anterior portion of the brain, beneath which, posteriorly is situated the *cerebellum*; from the former it is separated by a strong transverse membrane, called the tentorium. In man, the cerebrum is much larger in proportion to the cerebellum, than in any other animal; in the lower animals, the cerebellum has always the preponderance. The cerebrum is now very generally conceded to be the organ of the intellectual and moral faculties. It is divided into two hemispheres or lateral portions, by a doubling of the *dura mater*, which, from its resemblance to a scythe, has been called the falxiform process. Both hemispheres are identical in their structure and functions. The cerebellum is the organ of the passions, appetites and propensities; it is also composed of two parts, or lateral lobes. On the inferior part of the brain, commencing near its centre,

and projecting backwards, between the lobes of the cerebellum, is situated the *medulla oblongata*. Both the cerebrum and cerebellum are connected with the medulla oblongata, and through it with each other. The connection between the brain and the organs of sense, and the other parts of the system, is maintained through the medium of the nerves and the spinal marrow. The nerves of the organs of sight, smell, hearing and taste, together with the great sympathetic, which give branches to the stomach, heart, lungs, and other important viscera, are the nerves which proceed directly from the brain.

The principal disorders to which the brain and its membranes are liable, are concussion, compression from external injury, inflammation and suppuration, accumulation of water in its internal cavities, constituting dropsy, apoplexy, and various morbid growths.

THE MEDULLA OBLONGATA.

On the basis and near the centre of the brain, is a considerable prominence of medullary matter, formed by the junction of two processes, or *crura*, coming from the *cerebrum*, and a like number from the *cerebellum*; this prominence is called *pons varolii*. From the back part of the pons, proceeds, between the two hemispheres of the cerebellum, the *medulla oblongata*, composed externally of medullary, and internally of grayish matter; it extends backwards towards the opening which leads into the cavity of the spine, through which it is continued, to form the spinal marrow. Along its surface, on both sides, is a groove; on one side of the anterior groove the body is somewhat of an oval shape; this part of the medulla is called, therefore, *corpus olivare*; and on the other side of the groove, it is pyramidal; hence, this part is called *corpus pyramidale*. The medulla oblongata is supposed, by late physiologists, to form a kind of centre of union between all the different parts of the nervous system.

THE SPINAL MARROW.

That portion of the medulla oblongata which is continued into and fills the round cavity within the spine, is called spinal marrow. It is chiefly composed of white medullary matter, and extends down the spinal canal from its commencement, until about the first of the lumbar vertebræ. From hence it sends downwards a bundle of nervous chords, which, from a fancied resemblance to the tail of a horse, is called *cauda equina*. The canal of the spine is lined by a firm ligamentous membrane, while the spinal marrow is enveloped by the same membranes as the brain. Along the front and back of the spinal marrow runs a groove which divides it into two lateral portions; these are again divided by grooves, along the sides of the marrow, into an anterior and posterior portion. From the spine are given off thirty pair of nerves, which pass through lateral openings in the spinal column. Each nerve arises by two roots, separated from each other by a ligament which passes down on each side of the spinal marrow; one root coming from the anterior, and the other from the posterior portion of the latter. These roots unite and form at the opening between the vertebræ, through which the nerve passes, a ganglion. On passing out from the opening, each nerve divides into two branches, one going to the posterior, the other to the anterior parts of the body. The anterior branches unite together by numerous ramifications, and with branches from the great sympathetic, forming a kind of network, called plexuses. From these plexuses proceed nerves which are distributed to various organs. The anterior root of the spinal nerves, gives them the power of communicating motion to the part to which they are sent, the posterior root, sensation. It has lately been maintained that a third power is communicated to the spinal nerves, by filaments from the middle portion of the spinal marrow, viz: that

of presiding over the motions concerned in the process of respiration. The spinal marrow is subject to the same diseases as the brain.

THE NERVES.

Nerves are whitish pulpy cords, of various thickness, which are found distributed to nearly every part of the system. Every nerve that has yet been discovered in an animal body regularly formed, has proceeded directly or indirectly from the brain, a ganglion, or from the spinal marrow. The nerves distributed to the organs of sense and voluntary motion are, compared to the parts on which they ramify, proportionally the largest in the whole system. Any of the trunks of the nerves of the arm, are larger than the middle or great sympathetics, that supply the viscera of the thorax and abdomen; and the branches, at the points of the fingers, are larger than those which are seen entering the basis of the heart. All nerves have been divided into those which are sensible or insensible, voluntary or involuntary; the *sensible* being those which obviously and suddenly communicate intelligence to the vital principle, of the injuries or changes that take place in the system, or of the impressions that are made from without; the *insensible*, those which perform their operations obscurely and secretly, without the knowledge of the senses, and without in general awakening our consciousness; the *voluntary*, those which are either subservient, or at least partly subservient, to the will; the *involuntary*, those, whose functions are obvious to the senses, but on which the will has no direct or immediate influence. The sensible nerves become often insensible, and the voluntary nerves often involuntary, in consequence of palsy; while insensible nerves, on the other hand, are often observed to become sensible from the diseased state of the parts on which they ramify. Voluntary nerves, though generally sensible, do not appear to be necessarily so. Involuntary nerves, although exempted from any

direct influence of the will, are seldom exempted from the effects of fear, of anger, or any of the violent mental emotions which influence indiscriminately both the voluntary and involuntary nerves. We see those nerves which are not immediately subjected to the influence of the will, distinguished not only by a proportionally smaller size, but likewise by certain swellings or knots that are named *ganglions*; and as all these nerves are subservient to functions that are constant and uniform, it has been supposed that these ganglions are both reservoirs and sources of the nervous energy; and that by affording a regular supply, and resisting those occasional commotions excited by volition, they are calculated to preserve that uniformity in point of function, by which the involuntary nerves are distinguished.

Nerves also form *plexuses* or networks, whose use is less obscure than that of the ganglions. In the large plexuses formed by the nerves of the superior and inferior extremities, we see a number of communicating branches passing between one trunk and another; and which, probably, like the inosculating branches of blood-vessels, contribute to secure a more regular supply of that sort of energy which nerves convey to the different parts on which they are ramified. Physiologists are accustomed to trace particular connections among the organs that, distant or near, derive their nerves, not merely from the same ganglions or plexuses, but the same trunks, or the contiguous corresponding parts of the brain and its prolongation. It is thus they explain the sympathy between the eyes and the nose, when a strong light impinges on the one, or a pungent odour is applied to the other.

The accurate researches of modern anatomists have made considerable additions to our knowledge of the nerves. It has been discovered, that what is commonly called a nerve, may contain in one sheath nervous filaments possessed of very different properties, some conveying sensations from the external

world, or the surface of the body, to the brain; others transmitting muscular motion by volition, to the external organs. Thus, in a part of the body, as the face, the sensation may be entire, while the muscles are paralyzed, or the reverse may take place, the motions being perfect, but the sensibility gone. Hence many anomalous symptoms are explained; and paralytic affections, which were formerly thought to indicate great derangement of the brain, are now easily traced to a tumour pressing upon a particular nerve; and very bad symptoms disappear, from the spontaneous cure of the tumour, or by an easy surgical operation

GANGLIONS.

Ganglions are small, somewhat roundish shaped bodies placed in the course of certain nerves. They consist of nervous filaments, surrounded by a reddish gray pulp. Their uses have not as yet been accurately determined. The most probable opinion that has been offered in regard to their functions is, that the organs whose nerves pass through the ganglions, are rendered by the latter independent of the will. By some, it is supposed that the ganglions act as a kind of medium of communication between the nerves of organic life, and those of animal life.

Nerves of the brain.—These are, the *olfactory*, or nerves of smelling, distributed to the nose. The *optic*, or nerves of sight, forming the internal coat of the eye. The *auditory*, or nerves of hearing. Three pair of nerves, principally distributed to the muscles of the eyes, nose, and tongue. One pair distributed to the lungs and stomach. One pair distributed to the tongue, and one pair distributed to the muscles of the face, and called into action in certain of the respiratory movements; making in all, ten pair.

Pneumo-gastric nerve.—The nerve of the lungs and stomach or pneumogastric, called also *par vagum*, or the wandering nerve, from its extensive distribution, proceeds on each side, from the basis of the brain through the same

foramen or opening in the bones of the skull, which transmits the internal jugular vein, and, passing down the side of the neck into the chest and abdomen, furnishes nervous branches principally to the lungs and stomach. The lungs are supposed by some to receive from this nerve the power or faculty of producing the oxygenation of the blood, brought to them by the pulmonary arteries, and the stomach to receive from it the power of converting the food into chyme. This is attempted to be proved by the fact, that when the nerve is divided, the air which is expelled from the lungs is found to have lost but little of its oxygen, while the blood remains unchanged from its venous condition, and the animal dies from asphyxia. So, also, in regard to the stomach, after the division of the nerve the aliment which is taken remains either unchanged, or runs after a time into fermentation: others, however, believe them to be concerned only in the motions of the stomach, and respiratory organs.

Spinal nerves.—The spinal nerves are thirty in number on each side. They make their exit through openings between the vertebræ, and are divided into eight cervical, twelve dorsal, five lumbar, and five or six sacral. The manner of their origin and distribution has been already alluded to, when speaking of the spinal marrow.

Sympathetic nerve.—This is one of the most important nerves in the human body. It consists of a nervous trunk, extending down on each side the spine, from its upper to its lower part, along the course of which trunk are situated a series of ganglions to the number of twenty-five or twenty-six. Three of these ganglions occur in the neck, called *cervical*, twelve along the back, called *thoracic*, five in the loins, called *lumbar*, three or four along the sacrum, called *sacral*, and one on the coccyx, called *coccygeal*. The main trunks of the sympathetic communicate with all the spinal nerves, and with several of the nerves of the brain. At the point of communication, gang

lions exist, from whence nervous branches proceed to be distributed to the organs of organic life: it is the nerve which presides over all those functions of the viscera, which are affected independently of the will. In sending off branches to the viscera, plexuses are formed. Thus, from the cervical and thoracic ganglions, filaments proceed; and interlacing as it were, together, form a net-work, or plexus, at the back of the thorax, called *cardiac plexus*, from which the nerves of the heart proceed. Filaments from the thoracic ganglions form, in the back part of the abdomen, the great *solar plexus*, giving nerves to the stomach intestines, liver, spleen, kidneys, &c.

SYMPATHY.

Sympathy, in medical language, means, the consent of two or more parts of the body in one common action or suffering. The various parts of the body, in some degree, all sympathise with each other, but there are some whose actions are more particularly connected together. The stomach has a very general sympathy with the whole system, so that scarcely any organ can be affected with disease, without the stomach suffering with it. Thus, calculous disorders of the kidneys or bladder, occasion vomiting; the condition of pregnancy, and various states of the womb, also occasion sickness and vomiting. The brain, the liver, the intestines, the joints, and the surface of the body, sympathize with the stomach. A disgusting smell excites vomiting, and any thing irritating the fauces or the upper part of the wind-pipe, brings a great many sympathetic organs into action, to produce the cough or the sneezing necessary for its expulsion. The womb sympathizes particularly with the breasts, and with other parts peculiar to the female system. When a person has cold feet, or is standing in a damp place, he feels a pain at the pit of the stomach; and so complete is the sympathy established here, that by changing the shoes or

drying the feet, the pain is almost instantaneously removed. A bright light thrown on the eye occasions sneezing; and a pungent odour in the nostrils produces a flow of tears. The uniform and parallel motion of the two eyes, is to be ascribed to sympathy. The relief obtained in diseases of the internal parts, from a blister applied to the skin, is by some explained on the principle of sympathy.

SENSATION.

Sensation is the function by which we obtain information of the nature and properties of external objects, and of the state of our own organs. When any impression is made on the organs of the senses, that impression is conveyed by the nerves to the brain, or common sensorium. To produce sensation, a certain degree of impression is necessary, corresponding to the sensibility of the organ on which it is made. If the impression be too weak, no sensation follows; if it be too strong, it produces either pain or an indistinct idea. Sensations also depend on the previous state of the organs. Thus, the very same water will convey different sensations to the two hands, if one of them has previously been kept in warm, and the other in cold water. Some duration of the impression is also necessary to convey a distinct sensation. When the same impression is frequently repeated, the sensation produced is less lively, and the impression must be increased in quantity or intensity, to produce the same sensation. Hence, spirituous liquors and opium produce less vivid sensations when a person has got in the habit of using them; and hence, to produce the same sensation, he goes on increasing their quantity, to the certain ruin of his health.

Various derangements of the bodily structure, or irritating or distending substances, occasion certain sensations in us, by which we are warned to take measures for our own relief, or for the restoration of the healthy state. Under this we include pain from spasm, in-

flammation, or obstruction; and the sensations by which we are excited to the usual evacuations.

Sensibility, in medical language, means, the capability of receiving impressions and conveying sensations to the brain. In health, almost every part of the body is sensible, except the hair, the outer skin, and the nails; but in certain states of disease, parts which were formerly devoid of feeling, become exquisitely sensible; such is found to be the case with the bones, and the cartilages

SECTION XII.

THE EXTERNAL SENSES.

THE external senses are generally considered to be five, viz. vision, smell, hearing, taste, and feeling.

VISION.

Vision is the well-known faculty by which the images, colours, and motions of external objects are communicated to the brain. The organ of vision is the eye.

THE EYE.

The eye consists of two distinct parts—the ball of the eye, or the proper organ of vision, and the accessory apparatus, destined to shield it from injury, to preserve it in a fit state for the performance of its functions, and to produce the various movements of which the ball of the eye is susceptible.

The ball of the eye, as all are aware, is situated in a deep bony socket, and thus secured from a thousand accidents, to which it would otherwise be every moment liable. The socket is well lined with fat, which serves both as a soft cushion for the eye-ball, and also to facilitate its motions. When this fat diminishes, as in sickness, the eye sinks back in the head. The ball of the eye is considerably smaller than the socket, to allow room for its motions: it is not perfectly globular, but is in some degree elongated, and is

composed of different coats, somewhat like the coats of an onion, which enclose several humours. Externally, is a hard, opaque, pearly or blueish white coat, called *sclerotica*; this forms what is termed the white of the eye. This coat is covered with a fine transparent membrane, continuous with that which lines the eye-lids. Within the sclerotic coat, and in close contact with it, is the middle coat of the eye, which is thin, rather soft, and so full of minute blood-vessels, that its inner surface has a fleecy or velvet-like appearance, from their numerous terminations. This is called by anatomists, the *choroid coat*. The innermost coat of the eye, is a white and extremely tender film or network, formed by an expansion of the optic nerve, or nerve of vision. It is called the *retina*. This description applies, however, only to the posterior and lateral parts of the eye-ball; for, in front, instead of the opaque exterior coat, we observe a projecting transparent circular part, which, from its being firm and transparent, like horn, is called the *cornea*. This portion is somewhat more convex than the sclerotic coat, representing the segment of a smaller sphere added to the segment of a greater; or, in more familiar language, it may be compared to a convex watch-glass, fixed in the less convex surface of the watch-case.

The connection between the external and middle coats of the eye is very slight, depending upon a fine cellular membrane, and very small blood-vessels and nerves; except around the margin of the cornea, where these coats are firmly connected together by means of a white ring, called the *ciliary ring* or *ligament*. The middle coat proceeds anteriorly to this ring, but no longer lines the internal surface of the shell of the eye.—It is now reflected inwards, in a transverse direction, as if to form a partition, and is plaited, or laid in beautiful folds, like the ruffle of a shirt.

Behind the transparent cornea, is one of the most beautiful parts of the eye, which is fancifully called *iris*, or

rainbow, from its varied colour. It is this which, in some eyes, is blue, in others dark brown, or nearly black, and in others hazel or gray. It is a delicate and very sensible membrane, attached at its circumference to the ciliary ring, and dividing the eye-ball into two chambers, the one anterior to it, the other posterior. The iris has a round opening in its middle, called the *pupil*, or sometimes, vaguely, the sight of the eye. It is this produces the dark circle seen in the centre of the eye, varying in size according to the degree of light to which the latter is exposed. It is invariably deep black, whatever may be the colour of the iris itself, so long as the eye is free from disease. Through the pupil the rays of light are admitted into the internal parts of the eye. The dark colour of the pupil is caused by a black paste or pigment, which is spread over the internal surface of the middle coat of the eye. This paint differs in colour in various animals. In the ox, it is green; in the cat and owl, white and silvery; in the lion, golden yellow; in the dog, grayish. In the peculiar race of men called albinos, as well as in ferrets, white mice, rabbits, and pigeons, the paint is altogether wanting, and the pupil appears red, from the blood contained in the numerous vessels of the choroid coat. The use of the paint is evidently to modify the intensity of the light admitted into the eye. White and pale colours reflect light, while black and deep colours absorb it; hence, animals which prey in the dark, have this paint of a paler colour than in man, in whom distinct vision, in a full light, is a more useful faculty, than the power of distinguishing objects when the light of day is excluded. The eye of the cat, especially, concentrates all the light which falls upon it, the white paint reflecting it back on the objects near them: hence their eyes are observed to gleam in the dark, becoming, in some measure, a torch to light them to their prey. Upon the posterior surface of the iris, is also spread a paint, upon which its colour depends: it is usually brown, even

in light-coloured eyes. The different shades of colour in different individuals, result from the degree of transparency possessed by the iris.

The iris is capable of expanding and contracting in such a manner as to lessen the size of the pupil on the approach of a strong light, and to enlarge it in proportion as the light is less vivid. By this beautiful yet simple contrivance, the eye adapts itself instantaneously to the different degrees of light to which it may be exposed. Were the pupil to remain always as much contracted as it is when exposed to the light of noon-day, a weaker light, as that of the moon, would not be admitted with sufficient freedom to allow of distinct vision. On the contrary, if the pupil were permanently dilated, we might take advantage of the scattered rays of light, but should be distressed and blinded by the glorious effulgence of the sun.

The ball of the eye is filled with three substances, which differ from each other in consistence, but are called *humours* of the eye; they are the aqueous, vitreous, and crystalline.

The *aqueous*, or watery humour, which is a perfectly limpid fluid, fills the space between the iris and cornea, or the anterior chamber of the eye. Its use appears to be to distend the cornea and preserve its convexity: it likewise affords a medium for the iris to float in, so that it may perform its motions with perfect freedom. The watery humour accordingly fills the opening of the pupil, and a small quantity of it also lies behind the iris. The portion of the eye behind the iris is much the larger one, and is chiefly filled with a transparent fluid, which, from its appearance, is called the *vitreous*, or glassy humour; resembling, very nearly, melted glass, or the white of an egg. There is, besides, a small round transparent body, set in the front of this humour, like a diamond in a ring, immediately behind the pupil. This is the *crystalline humour* or *lens*. The glassy humour does not float freely like the watery, but is contained in a very transparent membrane, which is so arranged

as to form innumerable little bags, each containing a drop of the fluid, and so perfectly transparent as not to break the course of a single ray of light. The uses of this humour would appear to be, to keep the ball of the eye distended to the size necessary for the purposes of vision, and to retain the crystalline lens at the proper focal distance. This latter body, as has been already mentioned, is placed immediately behind the pupil, in a cup-like depression of the glassy humour. In form, it is like a very small, thick spectacle-glass, or the doubly convex lens of a spy-glass. It is composed of very transparent scales, laid one over the other. In the centre of the lens, these scales lie closer together than they do nearer the surface, forming a kind of firm button, which will leap out if the outer scales be divided. The whole lens is surrounded by a strong, thick, transparent, and elastic skin or capsule. The use of the crystalline lens is to concentrate the rays of light, proceeding from objects in the field of vision, so as to form a distinct image of them at the bottom of the eye upon the retina, or nervous coat. From this last, through the medium of the optic nerve, the image is conveyed to the brain.

The lens becomes occasionally opaque, constituting the disease termed cataract. Sight is of course prevented, and on looking into the pupil, it is perceived to be cloudy, gray or white, and not deep black, as in the healthy eye.

Protective apparatus of the eye.—

Immediately above the socket in which the globe of the eye is lodged, is the arch of the *eye-brow*, covered with hair, placed in an oblique direction, and moistened with oil. The use of the eye-brow is to prevent the sweat from running off the forehead into the eye, by directing it towards the temple and side of the nose. The hair of the eye-brow is very generally thicker and of a darker colour in hot than in cold and temperate climates. The eye-brows probably act also as a shade to the eye when exposed to too great a degree of light, and this effect is increased by

frowning. Hence, we almost involuntarily depress the eye-brows, and knit them, when we pass from the dark into a place strongly illuminated. In a weak or inflamed state of the eye, and in all cases where light is offensive, there is a habitual depression of the eye-brows.

The anterior part of the eye-ball is defended by the *eye-lids*, which act like valves; they are composed of a semi-transparent fleshy substance, covered externally with the skin, and internally with a delicate membrane, which passes from them over the fore part of the eye-ball. To the free edge of each eye-lid is attached a narrow rim of cartilage or gristle, which is hinged, as it were, to the bone at both angles of the eye; this rim gives firmness to the eye-lids, and preserves their expanded and convex form. The edges of the eye-lids are elegantly fringed with short hairs—the *eye-lashes*: the hairs of the upper lid being curved upwards, and those of the lower, downwards. The eye-lashes defend the eye, as with a grate-work, from dust or motes, and perhaps from some unknown operation of light; excluding, for example, extraneous rays. When the eye-lashes are plucked out, it always impairs the vision, which is an evidence of the important part they perform in the preservation of the functions of the eye. The upper eye-lid is the only one which is possessed of motion.

The use of the eye-lids is strongly evinced from what occurs when they are cut off,—a savage punishment sometimes practised among uncivilized nations. Sleep is prevented, and from the constant irritation of the light, first the eye becomes inflamed, and then the brain, and the unhappy sufferer expires in the most dreadful agony.

To preserve the transparent coat of the eye in a condition to enable it to transmit the light to the retina, or immediate seat of vision, it is required to be kept constantly moistened with a limpid fluid, or the *tears*. This fluid is separated from the blood by a whitish irregular body, denominated the *lacrimal gland*, situated within the upper

part of the bony socket, near the outer angle of the eye. This gland gives off seven or eight ducts, each not thicker than a hair, which run down on the inner surface of the upper eye-lid, and open near the outer angle of the eye. These ducts convey the tears to the eye, over the surface of which they are spread by the continued action or winking of the lids. It is computed, that in twenty-four hours there is supplied to the two eyes, four ounces of tears. The tears are constantly flowing into the eye, during sleep as well as when we are awake; during sleep, however, a less quantity is supplied, from the less degree of stimulus to which the organ is exposed.

The contrivance for carrying off the tears, after they have lubricated the surface of the eye, is one of the most interesting parts of the mechanism connected with the organ of sight. When the eye-lids come together, which they do almost every second, they form a channel which runs in front of the eye, inclining somewhat downwards towards the nose. Along this channel, the sides of which are formed by the ball of the eye and the two lids, the tears, which are brushed from the surface of the eye-ball, flow in the direction of the nose. When they have reached the end of this channel, they are sucked up by two minute openings; one situated on the very point of the angle of each eye-lid, opposite the last hair of the eyelash next the nose. These openings any one may see in his own eye, by examining it in a looking-glass. Each opening is surrounded by a whitish gristly circle, and is capable of admitting a bristle or a small pin. These openings are the orifices of two canals, running above and below the angle of the eye, in the thickness of the lids, in the form of a snail's horns. By these canals the tears are conveyed into a small reservoir, called the *lachrymal sac*, situated within the bone at the side of the nose, immediately below the inner angle of the eye. From the lower part of this sac a canal runs downwards, and passing through the bone

into the nose, conveys the tears into the latter, about an inch above the external nostril. After assisting to lubricate the nostrils, they are carried off, in the form of vapour, by the stream of air, which is constantly passing through the nose in the act of breathing. A part of the tears is likewise carried off by evaporation from the surface of the eye-ball. This is shown by the overflow of the tears in cold damp weather, when the air is less fitted to cause their evaporation.

Along the edges of the eye-lids, near the roots of the eye-lashes, are situated a row of minute orifices, to the number of about thirty in each lid; from these orifices are discharged a fatty substance, which appears to serve a two-fold purpose: it prevents the tears from running over the eye-lid, as any other fatty matter would do, and it prevents the eye-lids from adhering to each other, in consequence of the drying of the tears during their contact when we are asleep. When these orifices become the seat of inflammation, they produce the painful tumour denominated, in common language, a sty.

On examining the eye in a looking-glass, when it is turned away, as far as possible, from the nose, there is perceived, at its inner angle, on the ball, a little red fleshy eminence in the form of a half-moon. Its use would appear to be to arrest any minute substance that has accidentally been admitted within the lids, and to carry it to the corner of the eye behind its folded edge. In this it is aided by a fleshy substance, in the inner corner of each eye, and exterior to the former, called the *caruncle*, which is studded with a number of small hairs. Both these bodies are likewise useful in directing the tears through the proper channels into the nose. The caruncle secretes an ointment similar to that of the edges of the eye-lids. In some of the inferior animals, particularly in birds, the semi-lunar membrane just described, is capable of being spread at will over the whole front of the eye, performing the office of an additional eye-lid, by veiling the eye from the light

Motions of the eye-ball.—The varied motions of the eye-ball, by which we are enabled, without altering the position of the head, to extend so considerably the field of vision, are performed, like all other voluntary ones of the body, by the action of muscles or fleshy ribbons. There are six muscles appropriated to each eye. Being firmly attached by one extremity to the inner surface of the bony orbit, and by the other to a chord or tendon, which is inserted into the eye-ball, it is evident that when these muscles are excited by the will to contract, or become shortened, they must draw the eye in the direction in which their fibres are disposed.

Four of the muscles in each eye-ball proceed in nearly a straight line, from the bottom of the orbit, to the anterior part of the eye-ball, and are hence termed straight (*recti*) muscles; one being placed above, causes the eye to turn upwards; a second placed below, turns it downwards; a third on its outer side, turns it towards the temple; and a fourth, on its inner side, towards the nose. When these four muscles act together, they sink the eye within the socket, and keep it fixed and motionless. When they are called into action in quick succession, they give to the organ a kind of rotatory motion.

Independently of the foregoing motions, the pupil of the eye is capable of being turned obliquely upwards, and inwards, and also downwards, and outwards; the eye can likewise be protruded, to a certain extent, directly forwards. These motions are produced by the action of the two oblique muscles. The lower oblique muscle takes its rise from the side of the bony orbit within the internal corner of the eye, and running obliquely backwards, and to the inferior part of the socket, is inserted into the eye-ball near its middle. When this muscle contracts, it will, of course, by drawing that part of the ball to which it is attached towards the point of its insertion, turn the pupil upwards and inwards. The motion of the eye in the opposite direction, is per-

formed by the superior oblique muscle, the singular mechanism of which merits particular attention. It originates far back within the orbit, and running forwards is attached to a slender chord or tendon, which is made to pass through a pulley in the bone beneath the eyebrow, near the point where the latter forms an angle with the nose: the pulley is sometimes of bone, but more generally it consists of a loop of cartilage or gristle. After going over the pulley, the chord runs back again, and is inserted into the upper part of the eye-ball, about its middle. The two oblique muscles acting together, cause the eye-ball to project forwards, as in the effort to view a distant mountain, or a ship far in the offing—a most beautiful contrivance, quite unequalled in all our works of art, in simplicity of mechanism, and utility of design.

Connected with the organ of sight there are two other motions, viz. the opening and closing of the eye-lids—or, more strictly speaking, the eye-lid, for, as we have already remarked, it is the upper eye-lid only that moves. The eye-lid is raised by a muscle which originates within the socket, very nearly at the same place with the upper oblique, or pulley muscle of the eye-ball; running downwards, beneath the skin of the lid, it is attached to its cartilaginous rim or tarsus; when it contracts, it draws the latter upwards and within the orbit. The eye is closed by a muscle which arises from the edge of the temple and cheek, near the outer angle of the eye; its fibres then run in an oval direction within the substance of the two lids, and uniting together at the inner angle, are there attached by means of a small round tendon, which may be felt by the finger. This muscle being fixed at its two extremities, its contraction has the effect of changing the oval sweep of its fibres to a straight direction, and, of course, of bringing them, and with them the lids to which they are attached, in contact. The action of the muscle has also the effect of compressing the sac, which receives

the tears, and, by that means, causing the flow of the latter into the nose.

PHENOMENA OF VISION.

The rays of light proceeding from the objects within the field of vision, being collected by the transparent humours of the eye into a proper focus, pass onwards to the retina, where it covers the posterior part of the internal chamber of the eye, and on it form an exact image of the objects, with their appropriate colours; but in what manner the mind becomes conscious of this image is unknown. The image formed by the pencil of luminous rays which enters the eye, upon the retina, does not represent the object in its upright position, but inverted. This can be easily demonstrated by taking the eye of a white rabbit, and after carefully divesting it of its fat and muscles, holding it with the pupil directed towards a candle or other object, when the picture of the latter will be seen inverted on the back part of the eye; or if a fresh bullock's eye be taken, and the posterior coats dextrously removed to the vitreous humour, and a piece of white paper be then placed over this part, the image of any bright object placed before the eye will be seen distinctly painted on the paper, in an inverted position.

It has been a matter of much doubt and dispute by what means it happens that we see every object in its natural upright position, when we know it to be inverted on the organ of sensation. To this the most satisfactory answer that can be given is, that we do not see the picture which is formed at the bottom of the eye, but the object itself. The picture, or rather the impression made on the retina, is the means of seeing, and therefore it does not appear of material consequence on what part of the retina the impression is made. We, in fact, see the image in the direction of that ray which conveys to us the sensation, or rather in the direction of the axis of that pyramid, which a pencil of divergent rays forms in proceeding from any point of an object.

Although, therefore, the image, which is formed, may appear inverted to a person inspecting a natural eye, as in the preceding experiment, still the eye itself discerns the object in its proper and natural position.

It is very difficult to explain how it happens that a distinct image is painted upon both eyes, and yet that we only perceive a single object. This difficulty has been attempted to be solved by having recourse to the power of habit; but the correspondence of the centres of the two eyes, on which single vision depends, would appear rather to arise from some natural constitution of the optic nerves, than from habit. The case of the young man born blind, who was couched by Mr. Cheselden, and who saw singly with both eyes, immediately upon receiving his sight, may be adduced in favour of this supposition. Three young gentlemen, also, whom Dr. Reid endeavoured to cure of squinting, saw objects singly, as soon as they were brought to direct the centres of both eyes to the same object, though they had never been used to do so from their infancy.

In those who squint, the distance between the two pupils is considerably less than in other persons, for when the pupil of the undistorted eye is seated in the middle of the aperture, as in looking directly forwards, the pupil of the other eye is drawn close to the nose, so that the two axes are never pointed at the same object, though the muscles so far act in concert with each other, as to move both eyes the same way at the same instant of time. This vicious habit may easily be contracted by a child, if he is laid in his cradle in such a position as to perceive the light with one eye only.

The most common cause of squinting is, however, an inferiority in the sight of one of the eyes. Dr. Reid asserts, that having examined above twenty persons, who squinted, he found in all of them a defect in the sight of one eye. Four of them only had so much of distinct vision in the weak eye as to be able to read with it while the other

was covered ; the rest saw nothing distinctly with the defective eye.

When the eyes are equally good, we see with both eyes more distinctly than with one, by about a thirteenth part ; but when the eyes are unequal in their powers, objects appear less distinct with both eyes than with one. It is no wonder, therefore, that such persons should choose to make use of one only, and to turn the other aside. The weak eye, in this case, is generally turned to the nose, because in that situation the direction of its axis is as distant as possible from that of the good eye ; and besides this, the nose conceals many objects from its view.

A certain degree of light is necessary to perfect vision. In man, this varies according to the previous state of the organ of sight. Thus, a person passing suddenly from a room brilliantly illuminated, into one comparatively dark, is, for a time, incapable of seeing any object. On the other hand a very powerful light deprives the eyes for a time of their function ; hence, the unpleasant impression produced by the introduction of lights into a room where persons have been sitting in comparative obscurity ; or by looking at a blazing fire, or the sun. The effect thus induced upon the eyes is called daz- zling.

The powers of vision are limited, as well as those of every other sense and faculty of man.

The sight is very limited with respect to bodies in motion ; for with a certain degree of velocity, as that of a cannon- ball through the air, they are not visible, unless very luminous. The same effect is exemplified by the experiment of whirling a lighted coal.

If two objects unequally distant move with the same degree of velocity, the more remote will appear the slower. A visible object moving with any velocity, appears to be at rest, if the space described in a second of time is invisible to the eye. Thus, a near object, as the index of a clock, moving slowly, or a remote one, as a planet, moving swiftly, appears to be at rest. It is well

known, that when we are proceeding straight forward, as in a boat at sea, a lateral object, either at rest, or moving not so fast, appears to the eye to move the contrary way. If, however, the object is at a very great distance, it will seem to go the same way, as when a person runs by moonlight, the moon appears to accompany him. If two or more objects move with the same velocity, and a third remains at rest, it will appear in motion, while the moving ones seem at rest : this is exemplified by the moon and the clouds.

There are six natural methods by which we judge of the distance of objects from the eye. 1st. By the angle which is made by the optic axes. For want of this direction it has been observed, that persons who are blind of one eye frequently miss their mark in pouring liquor into a glass, &c. ; 2dly, and perhaps most generally, by the apparent magnitude of objects. By depending upon this method, we are frequently deceived in our estimates of distance by any extraordinary large objects, as in travelling to a great city, church, or castle, we fancy them nearer than they really are. This furnishes us also with a reason why animals and other small objects, seen contiguous to large mountains, appear exceedingly small ; for we imagine the mountain to be nearer to us than it actually is. On the other hand, when we look down from a high building, the objects beneath us appear much smaller than they would at the same distance on the level ground ; the reason is, plainly, because we have no distinct idea of distance in that direction, and therefore judge by the impressions upon the retina ; whereas, custom has corrected our judgment in the other case. The third method of determining the distance of objects, is by the force and vividness of the colours ; and the fifth is analogous to it, namely, by the different appearance of the minute parts. When these appear distinct, we judge the object to be near, and the contrary when they appear faint or confused. 6th. We are assisted in judging of the

distance of any particular object, by the other objects which are interposed. On this account, distances upon uneven ground do not appear so great as upon a plain; for the valleys, rivers, and other objects that lie low, are many of them lost to the sight. This too is the reason why the banks of a river appear contiguous, when the river lies low and is not seen.

When the eye-ball is either more flat or more elongated than usual, the focus does not fall properly upon the retina, and sight is defective. In the first case, the light, particularly that coming from near objects, reaches the retina before the rays come to a point. This commonly happens in old people. If the eye be too full and elongated, the rays, particularly those from remote objects, will meet in a point before they reach the retina, as happens in near-sighted people.

It is a certain and very important fact, that long-sightedness may be acquired; for countrymen, sailors, and they who are habituated to look at remote objects, are generally long-sighted, want spectacles soonest, and use the deepest magnifiers; on the other hand, the far greater part of the short-sighted are to be found among students, and those who are conversant with small and near objects; every one becoming expert in that kind of vision which is most useful to him in his particular profession and manner of life.

SMELL.

Smell is the sense by which we perceive the various odours of bodies. The lining membrane of the nose is the organ of smell.

THE NOSE.

The nose, in popular language, is the prominence in front of the face, formed principally of cartilage, covered with the common integuments, and guarding the external opening of the nostrils.

The proper organ of smell is a soft, vascular, porous membrane, furnished

with papillæ, which is spread on the internal surface of the nostrils. On this membrane are distributed a great number of nervous fibres, which proceed chiefly from the first pair of nerves, and pass from the brain through the ethmoid bone.

In order to render this sense more acute, the internal cavity of the nose is variously contorted, and enlarged by a communication with several adjoining cavities, so as to increase very much the surface on which the sentient membrane is distributed. The cavities with which the nostrils communicate are called sinuses; they are, the frontal, which are seated in the front bone of the skull, beneath the eye-brows; the ethmoid, which is a spongy cavity in the ethmoid bone; and the maxillary, which are chiefly formed in the upper jaw-bone, and lie immediately above the upper double teeth. In animals, which smell most acutely, these provisions for enlarging the internal surface of the nostril are still more remarkable.

The membrane of the nose is defended and moistened by a viscid mucus; and so necessary is this to smelling, that when it is deficient, the sense is always imperfect. The external nostrils are furnished with muscles, by which they are dilated, when, in order to distinguish scents more accurately we draw in a large quantity of air. Posteriorly the nostrils open into the throat. They are separated from each other by a partition, formed partly of bone and partly of cartilage.

The air, loaded with the effluvia emitted from odoriferous bodies, being inhaled into the nostrils, passes through the whole of the interior cavity of the nose. The effluvia are in some measure arrested and retained in contact with the lining membrane of the cavity, by the mucus with which the latter is covered. The olfactory nerves, which are distributed through the substance of the membrane, receive the peculiar impression produced by the odour, and convey that impression to the brain.

Smelling is impaired by too dry a state of the nostrils, by various dis-

orders, especially a common cold, by the habit of taking snuff, &c.

Sneezing.—Sneezing is a sudden spasmodic action of the muscles used in expiration, by which the air is forcibly expelled from the lungs through the nostrils, with a loud noise. Thus it is excited by any acrid or irritating substance applied to the nose; it is also a common symptom of catarrhal diseases.

HEARING.

Hearing is that sense which communicates to the brain the phenomena connected with sound. The organ of hearing is very complex, and composed of the external and internal ear.

THE EAR.

The external ear, which, from its resemblance to a certain sea-shell, is called *concha*, is a cartilaginous funnel, of an irregular oval form, moveably connected to the head by ligaments, muscles, and cellular substance. The muscles with which the ear is furnished, and which are much employed by quadrupeds, are of little or no use to man.

The *concha*, becoming narrower, terminates in the *meatus auditorius externus*, or external auditory canal. Into this are continued the skin and cuticle, which, as they enter it, become much thinner and more sensible, and are furnished with minute hairs, by which warning is given when any insect has found admittance, or when any injurious substance requires to be removed. This passage, and the membrane of the tympanum, by which it is terminated, are moistened by a viscid secretion, called the wax, which by stagnation becomes hard, and, when neglected, sometimes accumulates to such a degree as to occasion deafness. If we were to examine all nature for a contrivance proper for augmenting and echoing sounds with the utmost force and the greatest exactness, we should find the ear best formed for these purposes; by its admirable structure it receives sounds of all kinds, admits the

greatest quantity in the smallest space, and echoes each back without confusion.

The membrane of the tympanum, a membrane composed of several laminæ, is stretched before a roundish cavity, within the substance of the temporal bone, hence called the tympanum or drum, and which is about seven or eight lines wide, and half as many in depth. This cavity is increased in the adult by a communication with cells within the protuberance of bone felt immediately behind the external ear, and which do not exist before birth. Within, the tympanum is lined by a moist and vascular membrane. The tympanum communicates with the cavity of the throat, by means of the internal auditory canal, or Eustachian tube. This canal, which is partly bony and partly cartilaginous, begins by a very narrow opening at the anterior and almost superior part of the tympanum, increasing in size as it advances towards the cavity of the throat, where it terminates by an oval opening behind the nostrils.

Within the tympanum are lodged the little bones of the ear, which are four in number, and from their form have received the following names.

1. The malleus, or hammer. 2. The incus, or anvil. 3. The roundish or oval bone. 4. The stapes, or stirrup.

The body of the malleus is placed in the upper part of the cavity, and a long process, called the handle, descends between the layers of the membrane of the tympanum, where it is accurately fixed. It is articulated with the incus by means of two projecting ridges with a furrow between them.

The incus, which consists of a body and two legs, and is not unlike a tooth with a double root, exceeds the other little bones of the ear in size and strength. Its body is connected with the malleus; its shorter leg is placed at the entrance of the canal, which leads to the cells of the ear; its longer leg takes the same direction with the handle of the malleus, to which it is attached by a ligament, and being ben

inwards at its termination, receives the small oval bone, and by means of this is united to the stapes.

The resemblance of the stapes to a stirrup is so strong, that it can scarcely escape observation. Its head, which is formed by the union of its two legs, is hollowed for the reception of the little oval bone which connects it with the longer leg of the incus. The two legs of the stapes are bent nearly into a circle, and where they unite at the basis, cover the oval opening into the labyrinth. The stapes is situated in a part of the tympanum, separated from the other parts by a particular membrane.

The stapes and malleus are each of them furnished with a little muscle. The first of these, which is the smallest distinct muscle in the body, draws the stapes obliquely upwards, and assists in stretching the membrane of the tympanum. The other muscle is more remarkable, and as it operates like the former in stretching the membrane, has more particularly obtained the name of tensor tympani or drum-stretcher.

That part of the ear which is situated behind the tympanum is called the labyrinth. The labyrinth is separated from the tympanum by a bony partition, and only communicates with it by means of two openings of nearly equal size, one of which is oval, and is shut by the basis of the stapes; the other is round, and closed by a continuation of the membrane which lines the cavity of the tympanum.

In the labyrinth of the ear are situated the vestibule, the three semi-circular canals, and the cochlea.

The vestibule or porch is a cavity of an irregular roundish form, and is placed nearly in the centre of the solid portion of the temporal bone, between the tympanum, the semicircular canals, and the cochlea. It opens on the side of the tympanum by means of the oval hole, and communicates with the upper portion of the cochlea by an oblong opening, which is beneath the first opening, from which it is separated only by a very thin partition.

The semicircular canals are three in number. They form rather more than semicircles, and open at both ends into the vestibule. Only five openings, however, are observed, since two of the canals are united at one termination.

The cochlea, so called from its resemblance to the shell of a snail, is formed by a conical nucleus and circumvolutions of thin bony plates, which perform two complete circles and a half before they terminate at the apex. The canal of the cochlea is divided by a septum into two parts; of these, one begins from the round hole, the other from the vestibule. The septum, which divides them from each other, is partly bony and partly membranous; it is deficient at the apex of the cochlea, where the two cavities communicate. The bony shell which separates the two canals is exceedingly thin, and fills about two-thirds of the diameter of the canal. The rest of the septum is composed of a most delicate membrane which lines the whole internal surface of the cochlea. The soft portion of the seventh pair of nerves furnishes a film of medullary matter to the whole internal surface of the vestibule, the semicircular canals, and the cochlea. Every part of the labyrinth is also supplied with an aqueous exudation, which is supposed to receive and propagate to the nerves the vibratory motions imparted by the air. When this fluid is collected in too great quantity, or is compressed by the stapes, it is supposed to escape through two minute canals or aqueducts. One of the aqueducts opens into the bottom of the vestibule, and the other into the cochlea, near the round opening. They both communicate with the cavity of the cranium, they are lined with a membrane, which is supposed to be a production of the dura mater.

PHENOMENA OF HEARING.

By the external ear the sonorous undulations of the air are collected, and thrown inward upon the membrane of the tympanum, which receives and repeats these undulations. From thence

they are transmitted across the cavity of the tympanum by the air contained in the latter, by the chain of bones within this cavity, and by the bone which forms its sides; and by this means reach the membranes which close the oval and round openings at the bottom of the tympanum, through which they are transmitted to the fluid which fills the cavity of the labyrinth. Over the inner surface of this, the soft portion of the seventh pair of nerves, or the nerve of hearing, is spread, which, receiving the sensations thus imparted, transmits them to the brain. Every animal that has an ear is capable of hearing sounds, but it is only in man that the ear is capable of distinguishing accurately between the different modulations of sound, and the exact relation which their modulations bear to each other. But even in the human subject there is a very great difference in the acuteness of hearing, as well as in the capability of appreciating the harmony of sounds. Some individuals appear intuitively to have a taste and capacity for music; others are incapable of distinguishing between discord and harmony of sounds. Much of this, it is true, depends upon education, but in all probability much more upon the greater or less development of a particular organ of the brain, upon which the musical talent depends.

TASTE.

Taste is the sense by which we acquire a knowledge of the sapid properties of bodies, and by which we are in general taught, with considerable certainty, whether substances are proper to be taken into the stomach or not. In general, noxious substances have a disagreeable taste, which causes their immediate rejection, at least in animals, including the human subject, in an unsophisticated state. Vicious indulgences and excess may cause very pleasant sensations to be produced upon the palate by noxious substances of a very disgusting flavour, and may render the most savoury food destructive to health; while a few of the drugs, which are

highly poisonous, are by no means ungrateful to the taste. In fevers, and various other disorders, the taste is depraved or lost. The organ of taste is composed of the tongue and palate.

THE TONGUE.

This important organ, the organ of taste, and, in a great measure, of speech also, is composed of muscles, by the help of which it is moveable in all directions, and may be rendered broad, narrow, or hollow, at pleasure. Other muscles, which arising from the neighbouring parts, are inserted into the tongue, or the half-oval rim of bone at its base, cause it to be protruded, retracted, and moved to one or the other side, as circumstances may require.

The skin, with which the tongue is covered, is remarkably soft and thin, and is continually preserved moist and warm. On the surface of this skin, papillæ, or eminences of several sorts are observable. The first kind are few in number, and are placed at the back part of the tongue. These are surrounded with a small furrow, and their form is almost that of an inverted cone. They are not of a very delicate structure, nor are they much concerned in tasting. The second kind, which are smaller and softer than the preceding, and into which the first gradually degenerate, have somewhat of the form of a mushroom; they are scattered on the superior surface of the tongue, till, becoming more numerous towards its sides, they are there distributed in diverging lines. The third kind are of a conical form, are mixed with the other kinds, and are very generally distributed over the whole superior part and sides of the tongue. They are endued with a very acute power of sensation, and are the true organs of taste. These conical papillæ differ greatly in their size; and some of them are extremely minute.

These papillæ, besides being copiously supplied with blood, are also furnished with nerves, of which the tongue receives more, in proportion to its bulk, than perhaps any other part of the

body. On the upper surface, and towards the back part of the tongue, are two or three openings, which pour out a mucous fluid. The papillæ in man are covered with a thin and semipellucid membrane, which answers the purpose of an epidermis. In many animals, as those which feed on grass, the tongue is covered with a very rough and thick membrane, perforated so as to admit the dissolved food to the papillæ, which are placed beneath it.

ORGANS OF THE VOICE.

The principal organs of the voice are the glottis and the tongue, assisted by the fauces, the nose, teeth, and lips.

THE GLOTTIS.

The glottis is the opening into the upper end of the windpipe, situated directly behind the root of the tongue. It is formed by four ligaments running parallel with each other, from the front to the back of the larynx, two above, and two a little distance below. In front, the ends of each set of ligaments are in contact, but they slightly diverge as they pass backwards, leaving a space between them. The space between the two upper ligaments is called *rima glottidis*, or chink of the glottis, and is closed, in the act of swallowing, by the epiglottis. Over the ligaments passes the lining membrane of the throat, and in the space which intervenes on each side, between the upper and lower ligaments, it is so disposed as to form a bag or cavity; these are called the *ventricles of Morgagni*. The chink, between the ligaments, which forms the opening through the glottis into the windpipe, is capable of dilatation or contraction, by the action of muscles inserted into the posterior cartilages of the larynx.

THE EPIGLOTTIS.

The epiglottis is the cartilaginous lid which shuts up the entrance into the windpipe during the action of swallowing; so that, although the whole of our food passes over the tube which conveys air to the lungs, it is exceedingly

rare for the smallest particle to enter the latter, where it would be productive of great inconvenience and danger. This is so admirably contrived, that the very act of swallowing shuts the glottis. The epiglottis is somewhat in the shape of a small leaf, and is situated in the back part of the throat, at the root, and on a line with the centre of the tongue. It may be seen, by depressing the latter with any flat substance, and viewing the back part of the throat in a looking-glass. A case mentioned in Cooper's Dictionary, from Barron Larrey, shows how much we are benefited by this simple and beautiful mechanism. It is that of a French soldier, who had the epiglottis shot away at the battle of Alexandria, on the 21st of March, 1801. The ball entered at the angle of the jaw, crossed the throat obliquely, and came out at the opposite side of the neck. The base of the tongue was grazed, and the epiglottis shot away. The patient was not in much pain; but his voice was hoarse, feeble, and scarcely audible. When he first attempted to swallow, he was seized with a convulsive suffocating cough, attended with vomiting. Annoyed by thirst, which the extreme heat of the weather and the irritation of the wound excited, he incessantly repeated his attempts to drink; but always with the same result. Four days were passed in this deplorable condition. He already experienced violent complaints in his stomach; continued loss of sleep; he had a small quickened pulse, and was beginning to look thin. When Larrey saw him on the fifth day, the most urgent indication was to appease his hunger and thirst, which was done by introducing into the gullet an elastic gum tube; by means of which some drink was given to the patient, which relieved him much; and afterwards some rich broth. He was fed in this manner for six weeks, at the end of which time he was able, without the assistance of the tube, to swallow thick panado, and thickened rice, made into little balls. The powers of speech and deglutition in time became much more

perfect, in consequence, probably, of the enlargement of the neighbouring cartilages, and of the expansion of the base of the tongue, having formed a sort of substitute for the epiglottis. This patient must have been starved to death, but for the use of the elastic gum tube.

THE VOICE.

The voice of man, and other animals, depends on the form and structure of the larynx, or upper part of the windpipe, and on the opening into it, called the *glottis*. Articulation, which is peculiar to man, is produced by the muscles of respiration, the tongue, the teeth, the palate, and the lips. The glottis has been proved to possess the properties both of a wind and of a stringed instrument, as its opening or chink can be enlarged or contracted; and the ligaments attached to it can be more or less stretched. But the voice can be so varied and complicated in its tones, that no physiologist is able sufficiently to explain it.

The following specimen of inquiry on this subject is given in the printed Lectures of Mr. Abernethy:

“It is questioned how the tone of the voice is produced by the muscles of the throat; for that it is produced by those muscles, is manifested by the division of the recurrent nerve that supplies them. I said, in speaking of that nerve, that experiments had been made on that most noisy of all animals when under torture, namely, a pig; that when that nerve was divided, no sound was produced. Then, I say, how is this done? Does the tone depend upon the enlargement or diminution of the aperture, or does it depend upon the tension of the strings? Now, for my own part, I am not competent to say; and when I can not make up my own mind on any subject, I always form my opinion from the opinions of those who are sound-headed, and inclined to labour; and I find that Haller affirms that it entirely depends upon the tension of the strings, and not in the enlargement or diminution of the aperture. You know, on

wind instruments, you blow an octave higher with the same aperture only by shortening the tube; and this also takes place in the larynx, as I shall afterwards mention; but this relates to the note, and not to the tone of the voice. As to the tone, there is no tone if the muscles do not act; and the muscles seem to produce tone by tightening the strings. A two-stringed instrument—how can this produce tone? Now here, you know, you must attend to the construction of musical instruments in general. The strings are not the cause of the tone; the tone arises from the vibration of the wood by which those strings are surrounded. In the harpsichord, do the strings give the sound, or the vibration of the wood? Every one knows that it is the vibration of the wood. So it is also with the fiddle. It is the wood, then, that gives the vibration, and this communicates with the air, as the material which communicates sound to us. It is in this way, too, that the tone of the voice is produced; and it is very curious that such results should take place from such simple mechanism; but you are already apprised of how these results do take place. Then, again, the current of tone is split and subdivided, and so are particular sounds. With regard to this splitting and subdivision of the current of sound, necessary for articulation of words and communications of feelings, I would have you study that, to a certain extent, at any rate. It is a very curious thing, that from this study there has resulted an effect, which is the greatest that we can imagine to have been produced by human labour and observation, that of teaching the deaf to speak—teaching a man who never heard a sound to communicate his sentiments to another, and be capable of understanding, merely by the observation of the lips. Now, then, the outlines of the study are formed in the following manner: All *vowels* seem to be but notes of the voice; they are all done in the larynx. Then *consonants* are divided into *labial*, *lingual*, *dental*, and so on. The labial consonants called *b*, *p*, and *m*, are produced

simply by the closing of the lips; and this being a motion which a child might perform without volition, the first thing a child pronounces is *ba, ba, papa, pa-pa*. Lingual, *d, t, l*, and so on, *ta, ta, la, la*; *g* is a lingual, it is done by the back part of the mouth, and is certainly the very first sound a child utters, *ga, ga, ga*; *s* and *z* are dental, or compound, and are pronounced by a sort of hissing through the teeth."

The voice is injured by various diseases. A catarrh or common cold produces inflammation of the larynx; and the voice is altered both by the elasticity of the ligaments being diminished, and by the quantity of mucus secreted, preventing their vibrations. In fevers, and diseases of debility, the voice is affected from the weakness of the muscles subservient to it. In hysterical complaints, the voice is sometimes lost; it is occasionally recovered for a few minutes or a few hours, without any evident cause, and then lost again. In palsy, the voice is weakened, and the power of articulation lost. The passion of fear has the same effect. The treatment of this unpleasant defect must vary with the cause producing it. Inflammation is to be subdued by the proper means; and palsy and other nervous affections are to be treated with repeated blisterings.

When the delicate structure of the parts concerned in the formation of the voice is considered, it will not appear surprising that various organic changes should take place, and cause an almost constant, or even a permanent loss of voice; and that from the great exertions of public speakers and singers, they are often the subjects of disease in those parts.

SECTION XIII.

THE ORGANS OF GENERATION.

THE organs of generation of the male are the testicles, the spermatic ducts and vessels, the seminal reservoirs, and the penis; of the female, they are the

mons veneris, clitoris, nymphæ, vagina, uterus, fallopian tubes, and ovaries.

THE TESTICLES.

The testicles are two firm ovoid glandular bodies, situated in the scrotum, by which the semen of the male is secreted. They are covered with an external coat of serous membrane, and by a proper enveloping coat of great firmness and density, and of a white colour. On the upper and anterior extremity of each testicle, and firmly attached to it, is a body of a reddish colour, called epididymis. Internally the testicles are composed of a soft pulp, and a filamentous matter, of a yellowish brown colour, divided into separate portions by a delicate membrane. In contact with the inner surface of the testicle, at its posterior part, is a long whitish substance which gives support to the ducts as they pass to the epididymis. From the filamentous matter of the cells pass small straight tubes, which, at the back part of the testicle, form a net-work. From this net-work other vessels, between twelve and eighteen in number, pass through the coat of the testicle to the epididymis, in the upper part of which they are formed into convoluted bundles. These tubes unite, at length, into a single canal which is also convoluted; this finally becomes straight, and proceeds from the back part of the testicle to the spermatic cord, with which it enters the abdomen, conveying the semen secreted by the filamentous matter of the testicle to the urethra, at the posterior part of the prostate gland.

THE SCROTUM.

The bag containing the testicles, is called the scrotum. It is formed of skin and cellular membrane, with a few delicate muscular fibres; these parts form two cavities, which are lined internally with a serous membrane. When the secretion from this membrane is in excess, it forms the disease termed *hydrocele*. The cellular membrane of the scrotum becomes also occasionally distended with fluid; it constitutes drop-

sy of the scrotum. The bowels occasionally pass out of the abdomen through the abdominal ring, and descend into the cavity of the scrotum; this is what is termed *scrotal hernia*.

THE SPERMATIC CORD.

The blood-vessels, lymphatics, nerves, and excretory ducts of the testicles, connected together by cellular membrane, and covered by a few muscular fibres, constitute the spermatic cord. The cord passes through the abdominal ring into the cavity of the scrotum.

THE SEMINAL RESERVOIRS.

The reservoirs of semen are two bodies of a whitish colour, and irregular form, situated between the bladder and rectum. They appear to be composed of a tube, and numerous branches convoluted, or folded together, and connected by cellular membrane. From each reservoir proceeds a short duct, which joins with the proper duct of the testicle and the common duct penetrates through a part of the prostate gland into the cavity of the urethra. These bodies are generally believed to be reservoirs of semen, but are not positively ascertained to be such.

THE PROSTATE GLAND.

The prostate gland is a firm solid body, shaped like a chestnut; and is situated at the lower part of the neck of the bladder. Its broadest extremity presents backwards, its smallest forwards; its uses are unknown.

THE PENIS.

The body of the penis is composed of two irregular cylindrical bodies, called *corpora cavernosa*. They are formed of a membrane so arranged as to form innumerable cells, which communicate freely with each other, and are filled with blood when the penis is erected. The two cylinders are united together laterally, and communicate through openings which exist in the membranous septum which is interposed between them. The cavernous bodies arise from the bones of the pelvis, to

which they are firmly attached. Where they join each other, there exists above and below a groove running their whole length. The upper superficial groove is occupied by a large vein; the lower groove, which is much deeper, receives the urethra, covered with a spongy body. The urethra is the membranous canal which conveys the urine from the bladder. The spongy body, as its name implies, is a soft spongy substance contained in a thin membrane. The termination of the penis anteriorly is covered with a soft spongy body, having a delicate and very sensible skin; the body is called the *glans penis*. At its base, its circumference is larger than that of the body of the penis; and hence it projects over it at its upper and lateral parts. The whole of the penis is loosely enveloped by the common integuments, which, when they arrive at the basis of the glans, continue some distance beyond the end of the penis, are then folded back upon themselves, and adhere firmly over the whole glans, acquiring here a greater delicacy of structure. The free fold of skin thus formed covers the glans like a cap; and is called *prepuce*. The arterics of the penis discharge their blood into the cells of the cavernous bodies, and the interstices of the spongy body and glans, under certain excitements of the mind, thus causing the elongation and erection of the organ.

FEMALE ORGANS OF GENERATION.

The mons veneris is a cushion, composed of cellular membrane and fat, and covered with the skin and hair. It is situated over the share bones, in front of the abdomen, and immediately above the labiæ.

The labiæ are two projections or thick lips, consisting of cellular substance and fat, covered by the skin and hair; they proceed downwards from the mons veneris, on each side of the external orifice of the vagina.

The nymphæ are two folds of the skin, situated immediately within the labiæ, and surround the entrance into the vagina.

The vagina is the canal leading from the labiæ to the neck of the womb. It is lined internally by a mucous membrane.

The clitoris is a small body about an inch in length, situated in the angle formed by the union above of the two nymphæ. In structure and appearance it very nearly resembles the male penis, and like it becomes erected during the venereal excitement. It is liable to inflammation, cancer, and enlargement.

The urethra in females is about one inch in length; it opens externally immediately below the clitoris.

The womb.—The womb, or uterus, is the organ in the female, in the cavity of which the embryo lives and grows till the time of birth. It is shaped something like a pear, with the broad end uppermost. Its broadest part is called its *fundus*; it has also a body and a neck: its mouth opens into the vagina. In the unimpregnated state, it would hardly contain a kidney-bean, but at the full time, it expands sufficiently to contain one or more children, with their waters, membranes, and after-births. At the upper part of the womb, arise two broad membranous expansions composed of a duplicature of the peritoneum, which are the means of its attachment to the sides of the pelvis. In the doublings of these expansions are situated the ovaries, and also the tubes, through which the impregnated ovum passes down to the uterus, into which they open on each side of its fundus. Sometimes the embryo stops in one of these tubes, instead of getting into the uterus. From the womb proceeds the monthly discharge.

The sympathies of the womb with other parts are of the most general and extensive kind. Not even the stomach itself has more influence on the rest of the system. When the state and contents of the womb are altered by pregnancy, the stomach, the bowels, and digestive functions are in very frequent instances exceedingly deranged. The brain and nervous system, the function

of respiration, and the state of the breasts are all very much influenced by the condition of the womb.

The ovaries.—The ovaries are two gland-like bodies of an oval form, and pale red colour, situated in the cavity of the pelvis. They are enveloped by the peritoneum where it proceeds from the sides of the pelvis to the upper portion of the uterus, and are in contact with the fringed extremities of the fallopian tubes. On the surface of each ovary are a number of small rounded projections. The ovaries are the seat of conception.

The fallopian tubes.—The fallopian tubes are conical membranous canals, which proceed from the angles of the uterus, at its basis, upwards towards the ovaries. The end of each tube, nearest the uterus, communicates with the cavity of the latter by a very small opening. The upper extremity of the tube is fringed, and communicates with the cavity of the abdomen, excepting at the moment when impregnation takes place, when the fringes which surround the opening into the tube clasp firmly the ovary with which they are in contact, and allow the ovum, or small egg which is detached from the latter, to pass into the tube, through which it is conveyed into the cavity of the uterus. The ovum is sometimes arrested in the tube, and the fœtus is there developed instead of in the womb: this constitutes what is called tubal pregnancy.

MENSTRUATION.

Menstruation is the discharge of a bloody fluid which takes place about every four weeks from the womb. The regularity, permanence, and universality of this discharge from the uterus of the human female, is certainly one of the most curious facts in physiology and natural history. It occurs in the female of none of the inferior animals, and in no climate of the globe is the human race exempt from it. It commences at different ages, according to the heat of the climate, being earliest

in the warmer regions. In our climate, and in the more temperate regions, it begins about the age of fourteen, at which time also the breasts begin to form, and the whole appearance of the person is more interesting and mature. The discharge continues each month, for a few days at a time, and the average quantity is about four or six ounces. This discharge returns with great regularity for many years, till about the age of from forty-two to forty-six. With some the period is shorter, being every three weeks. There are some women who do not menstruate at all, and such are universally barren. Menstruation, therefore, seems necessary to the capability of conception. Menstruation is suspended during pregnancy, and for some time after delivery, while the woman is giving suck; but if the nursing be continued too long, the discharge returns, and the milk is then less fit for the nourishment of the child, or it ceases altogether. Some women menstruate easily, without any particular change or inconvenience, but in most women there is some irritation of the whole system, or the stomach and bowels are affected; and costiveness and flatulence, or spasmodic pains occur, before and at the time of menstruation. It is proper to avoid the exhibition of all medicines, particularly those of any activity, during the flow of the menses; and the sex, in general, have a prejudice against taking medicine at that period; but in cases of alarm or danger, it may be necessary to depart from the general rule, and this may be done without much injury. It is proper, during menstruation, for women to avoid every thing that disagrees with the stomach, or that is indigestible; they should avoid also exposure to cold, violent exercise, and strong or sudden mental emotions; as all these circumstances are apt to produce bad effects, either deranging or stopping the discharge, or occasioning flooding, or much pain and spasmodic action.

SECTION XIV.

GENERATION.

THE functions of those organs by which the human species is propagated, is termed generation. Without entering into a consideration of the numerous theories to which this subject has given rise, and avoiding those details which are improper in a work like the present, we shall endeavour to give, in a few words, the present state of our knowledge in regard to it. By the experiments of modern physiologists, it seems to be proved that the embryo of the future child pre-exists in the ovary of the female; and in the moment of impregnation, is detached from thence. Yellowish scars or cicatrices remain at the spot from whence the ovum or egg containing the embryo has been separated, which scars are said to exist in exact proportion to the number of times that conception has taken place, and to be absent in the virgin. The ovaries are two spheroidal flattened bodies, situated in the upper and lateral parts of the pelvis. They have no immediate connection with the womb; but near them the superior open extremities of the fallopian tubes hang, surrounded by loose fringes, into the cavity of the abdomen. During the venereal orgasm, when conception occurs, these fringed extremities are erected, and grasp the ovaries, from one of which, sometimes, perhaps, in the case of twins, from both, they receive an ovum, which is conveyed through these tubes into the cavity of the uterus, which latter has been previously prepared for its reception, by its whole internal surface becoming lined with a spongy coat (the decidua.) In order for conception to take place, and the ovum to become detached from the ovary, it is necessary that the male semen be introduced into the uterus. Whether it produce here an impression which, when repeated in the ovary by sympathy, rouses the latter into action, or is conveyed through the fallopian

tubes to the ovaries, is unknown. The first of these opinions appears to be the most probable, as an ovum has been found detached from the ovary, when the fallopian tubes have been tied or divided. Generation then is merely the animation of a pre-existing germ by the stimulus of the male semen. The embryo being independent of the mother, excepting so far as it is her who supplies it with the fluids necessary for its growth; there is little difficulty in accounting for its subsequent development, and the successive evolution of the different organs. The male semen would, however, appear to contribute something more to the fœtus, than the mere stimulus necessary to call its germ into activity. The primordial embryo is undoubtedly in the female; but when we recollect that in a large family some of the children will partake of the form, temper, and diseases of the father; others of the mother; and that the union of a male and female of different species, even in the vegetable kingdom, is followed by a hybrid production, partaking of the natures of both; it must be evident, that the male stamps upon the embryo, in the act of generation, an image of himself, either by a union with it of principles derived from him, or a modification, by the influence of his semen, of those which pre-existed, in a manner which will probably never be explained.

GESTATION, OR PREGNANCY.

Gestation is the period during which the fœtus remains within the womb, from the period of conception to that of birth. In the human female, this period is nine calendar months, or forty weeks

THE FŒTUS.

The young of animals while in the womb is termed a fœtus. The human fœtus is contained in a bag composed of different membranes, which is styled the ovum. This ovum, as soon as it becomes visible, appears like a small vesicle, attached to some part of the

uterus, generally to its upper part; and all the organs of which it consists, seem to be confusedly blended. By degrees they appear more distinct, and in the advanced periods we observe the membranes, called the amnios, the chorion, and the decidua. The decidua lines the inner surface of the uterus, and is reflected over the ovum; the amnios is next to the fœtus, and the chorion lies between the other two membranes. In the early periods of gestation, the bag or external parts of the conception are large in proportion to the fœtus, but afterwards they are in a smaller ratio, the fœtus increasing more rapidly than its envelopes and accompaniments; the latter seldom become more bulky after the seventh month. The fœtus is for a time invisible, on account of its minuteness and transparency. A fœtus of four weeks is nearly the size of a common fly; soft, mucilaginous, and, in appearance, suspended by the belly; its bowels covered by a transparent membrane. At six weeks, it is of a somewhat firmer consistence, nearly the size of a small bee; the extremities then begin to shoot out. At three months, its shape is tolerably distinct, and it is about three inches long. At four, five, and six months, it is five, nearly seven, and nearly nine inches, respectively. In the successive months, it increases in length to ten, fifteen, and twenty, or twenty-two inches, though varying in different women, and in different births. Indeed, all these measurements are rather approximations than accurate representations. Between the chorion and amnios, in the early months, a collection of gelatinous matter is found; and in the latter months, this space is occasionally filled by a serous fluid, styled the false waters; so that every discharge of water in pregnant women is not dangerous. If not attended with a discharge of blood, it is apparently harmless. The *navel string*, which is composed of two arteries and a vein, proceeds from the navel of the fœtus, and passes into the placenta, a thick spongy substance, which is most commonly

attached to the fundus, or upper part of the womb. It consists of two parts, one of which contains numerous blood-vessels that can be injected exclusively from the arteries of the mother. The remaining part of the placenta is an organ of the fœtus, and the vessels can be injected only from the umbilical cord. The two arteries which form part of this umbilical cord, are a continuation of the hypogastric arteries of the fœtus; and they convey to the placenta the blood which has circulated in the child, in order, as it is supposed, that some change may be produced in it, analogous to the change produced on the venous blood of the adult by respiration. Numerous vessels take up the purified blood from the placenta, and carry it into the umbilical vein, which transmits it to the liver of the fœtus, in which organ one half of the whole mass circulates. The remainder of the blood is carried, by a vessel called the *ductus venosus*, to the *vena cava*, or large vein terminating in the right auricle of the heart, where also the blood, after having circulated through the liver, arrives. As the lungs are not yet expanded by air, they can receive but a very small portion of the blood, nearly all of which passes through the *foramen ovale*, an aperture in the partition which divides the right from the left auricle of the heart. That portion which passes into the right ventricle is conveyed directly to the aorta, by a duct, called the *ductus arteriosus*. Thus the entire mass of the blood is conveyed to the principal artery of the body, to be circulated throughout every part. It is difficult to explain how the fœtus is nourished. The blood, however, probably undergoes some change in the mother, which fits it for furnishing materials for growth and nourishment when it reaches the fœtus.

There are some other peculiarities of the fœtus which may be mentioned. The head is very large in proportion to the rest of the body; the bones of the head are soft and yielding; the sutures not yet formed, and a triangular space

is left at the union of the coronal and sagittal sutures. This is what nurses call the *opening* of the head. The bones of the trunk, the extremities, and the articulations, are very flexible. All the protuberances of the bones are distinct portions, united by cartilage, to the bone of which they are afterwards to form a part. The brain and spinal marrow, the glands, and the sanguiferous system, are larger in proportion than in the adult. The cavity of the chest is less than it is after respiration has commenced; the lungs are smaller, more compact, and of a red colour, like the liver. The belly is disproportionately large, and the extremities particularly small.

When the child is born, and respiration has begun, the peculiarities of the fœtus begin to disappear. In consequence of the expansion of the lungs, a larger portion of blood is carried into that organ; the foramen ovale soon closes, and the ductus arteriosus is lessened, and gradually contracted into a ligament; while the whole of the blood brought by the veins is now carried through the lungs. When the supply from the umbilical cord is cut off, the ductus venosus contracts in the same way.

It seems now to be admitted, except by the very credulous and ignorant, that the imagination of the mother has no power over the infant in her womb, either to alter its structure, to mutilate its limbs, or to impress any mark on its surface. A few remarkable coincidences have certainly happened, but many falsehoods and misrepresentations have given currency to the stories which have been adduced, in proof of the influence of the mother's imagination on the fœtus: honest inquiry and sound philosophy alike, put a negative on the assertion. But though the imagination and longings of the mother cannot affect the fœtus, her diseases have done so. In fever, it is possible the increased heat of the blood, may affect the irritable frame of the fœtus; and the matter of small-pox, which per-

vades all the fluids, may be absorbed from the maternal part of the after-birth, and conveyed to the embryo.

Sometimes the fœtus is lodged, and grows, not in the womb, but in some of its appendages, and even in the cavity of the abdomen. Such extra-uterine conceptions are generally fatal to the mother; but, in some instances, when the fœtus dies, adhesions having taken place to the sides of the belly, an abscess is formed, and the child comes away in parts, the mother eventually getting well.

THE PLACENTA, OR AFTER-BIRTH.

The placenta, or after-birth, is the thick and spongy cake by which the child, before birth, is attached to the internal surface of the womb, and through which, by means of the umbilical cord, it receives a supply of blood from the vessels of its mother. In the human subject, the placenta is flat and circular, about a span in diameter, and an inch in thickness, becoming gradually thinner from the centre to the circumference. It consists of two portions, closely united by cellular membrane: into that portion which is attached to the womb, the blood-vessels of the mother penetrate and ramify; into the other, the vessels of the umbilical cord. In ordinary labour, the placenta is thrown off by the contracting of the womb, in what is called the third stage of labour.

THE CHORION.

The chorion is the outermost of the membranes which envelope the fœtus. It is a thick, opaque, firm, spongy membrane, covered with flocculi, or villi, on both its surfaces.

THE AMNIOS.

The amnios is the soft internal, transparent membrane by which the child is surrounded in its mother's womb. It is very thin in the early period of pregnancy; but acquires considerable strength in the latter months.

Liquor amnii.—The watery fluid contained within the amnios, and in

which the child floats, suspended by the navel string. The discharge of this fluid, in consequence or the rupture of the membranes which contain it, is known by the name of the discharge, or breaking of the waters.

THE NAVEL STRING.

The navel string, or umbilical cord, is composed of two arteries and one vein, held together by a cellular structure containing a gelatinous fluid, and covered by the membranes which envelope the fœtus. It is by means of this cord that the child in the womb is nourished. The vein which conveys the maternal blood to the fœtus, arises by numerous branches from the fetal portion of the placenta, runs up the cord, enters the abdomen of the child, at the navel, and proceeds to the liver. The arteries of the cord bring back the venous blood to the placenta, from the body of the child. The length of the cord is various; it is generally, however, at the period of birth, about twenty inches. It often forms knots, by becoming twisted upon itself, and occasionally passes around the neck of the child, causing the strangulation of the latter during birth.

MILK.

Milk is the white opaque fluid secreted by the mammæ of the female, for the nourishment of the young. When milk is set at rest, it separates spontaneously into three parts, *cream*, *serum*, or whey, and *curd*. The cream contains the oily part of the milk, and when fully separated from the other parts of the milk, forms the well-known substance, *butter*. The whey is composed principally of water, holding in solution a saccharine matter, and various salts. The curd, or coagulable part, is composed chiefly of albumen. The milk of the human female contains a greater amount of saccharine matter, and less curd than that of the cow. The quantity of milk secreted, is not proportionate to the bulk of the female breasts; a small breast sometimes affording a greater supply than a

large one. The secretion of milk generally commences immediately after the birth of the child, and continues for one or two years. The quality, as well as the quantity of the milk, is influenced by the health of the female, and the nature and quantity of her food. It is most abundant and richer when she lives upon animal food, less so, when she is confined to a spare vegetable diet. Various substances taken into the stomach of the mother, will communicate their active properties to the milk, and, through it, act upon the infant. A violent fit of anger, also, has been known so to alter the milk, as to cause convulsions in the child who partakes of it.

SECTION XV.

ORGANS WHOSE OFFICE IS UNKNOWN.

The thyroid gland.—A glandular body, situated on the fore part of the windpipe: it has no excretory duct. It is larger in the infant, before birth, than in the adult. In mountainous regions, it is often enormously enlarged, forming the goitre, or wen of those countries.

The thymous gland.—A spongy body, situated in the anterior and upper part of the mediastinum, behind the superior end of the breast-bone. It is very large before birth, and is then filled with a thin whitish fluid. In adults, it is hard, small, and gradually decays. It has no excretory duct.

The renal glands.—Two triangular bodies, of a glandular appearance, situated, one on each side of the abdomen, immediately above the kidneys. They are attached both to the diaphragm, and to the kidneys. The one on the right side adheres to the liver; and that on the left, to the spleen and pancreas. In the fœtus, they are larger than the kidneys, but become gradually smaller in after life. These bodies are hollow, and are filled with a reddish matter.

THE SPLEEN.

A soft substance, situated on the left side of the abdominal cavity, the functions of which are still a subject of much speculation. The spleen is a flat body, of a blueish colour, and an irregular oblong shape, varying in size in different individuals, from a few to several inches in length, and of a proportionate breadth and thickness. It is in contact with the diaphragm, and situated below the eighth rib of the left side, near its junction with the spine. It is plentifully supplied with blood-vessels and absorbents. It has no excretory ducts. It is connected with the left extremity of the stomach by three or four small blood-vessels, called *vasa brevia*. The spleen is subject to inflammation, enlargement, and other diseases.

SECTION XVI.

SLEEP.

SLEEP is that state during which the organs of animal life are rendered insensible to their accustomed stimuli, and cease to act. The external senses can no longer receive impressions; the mind is unconscious of external objects, while the passions, emotions, and intellectual faculties are in a state of complete torpor. Sleep is, therefore, the periodical suspension of nearly all those functions, which render us conscious of our own existence, and connect us with the exterior world. The organic functions still, however, remain active, though, perhaps, even these are less active, during sleep, than in the waking state. The organs of animal life become fatigued, and their energies exhausted, after they have been in action for a length of time; and their inactivity, during sleep, would appear to be necessary, in order to enable the fatigued organs, by rest, to recruit their energies. How sleep is induced; by what power the activity of the mind and body is interrupted during that

state, and what are the causes by which it is terminated, and the organs which had been in repose are again caused to perform their appropriate functions, are circumstances of which we know but little, if any thing. During sleep, the circulation of the blood, respiration, digestion, secretion and nutrition are regularly performed, but with less activity than during the waking hours. The heart beats slower, and, of course, the circulation is less rapidly performed; respiration is also retarded, and the whole capillary system acts with less vigour; hence, the temperature of the surface is reduced, and the individual, if not properly protected from the external air, feels sensibly its changes; and cold is then more liable to induce disease than when the body is exposed to an equal, or even greater degree of it when awake. From the process of digestion being less vigorously performed, arises the impropriety, and even danger of eating food immediately before retiring to rest. Without a due amount of sleep, health suffers; and even death would ensue, if by any means wakefulness were protracted for too long a period. Indeed, there are no circumstances, however urgent, that will prevent, for any length of time, the approach of sleep. Under the severest calamity, when surrounded by the loudest noises, even amid the din and dangers of battle, or when the body is suffering the most excruciating agonies, sleep has been known to steal at length upon the harassed frame, and lull its senses into sweet oblivion. Healthy sleep is generally so profound as to resemble, in all that regards voluntary motion and self-consciousness, death itself. The period which elapses between the commencement and termination of sleep, is, as it were, blotted out of existence. But it is only in those who live active and temperate lives, and whose minds are free from absorbing cares and passions, and from intense thoughts, that sleep is thus perfect. In others, it is so slight as to be interrupted by the slightest noise which occurs near them; or the inactivity of

the organs of animal life and of intellect is but imperfect, some still exercising to a greater or less extent their functions; and hence, dreams, violent struggling of the body and limbs, speech, or even the full activity of the voluntary muscles, or sleep-walking, is not unfrequently observed. The period required for sleep, by different individuals, depends much upon temperament and peculiarities of constitution, and the state of health, as well as on the mode of life and habit. While some do not sleep beyond five, six or seven hours, others again cannot do with less than eight or nine hours. Children sleep more than half their time, while adults need much less repose, until old age advances, when once more a lengthened period for sleep is demanded. As a general average, eight hours is a good allowance. Beyond this, sleep becomes injurious. Night is the proper period for repose. When man is left to obey the impulse of nature, unimpeded by the factitious habits of civic life, as regularly as the sun sinks below the horizon, he feels that instinctive desire which urges him to court repose. As the day declines, the pulse becomes accelerated; the skin is apt to be more dry and hot, and all the functions of the body feel a peculiar languor, which renders the individual disinclined to active exertion, and all his organs seem to court that repose and refreshment which sleep alone can afford. Experience has, in fact, shown, that in the first hours of the night the sleep is the most profound, and communicates the largest amount of refreshment to the body.

DREAMING.

Dreaming is that state of imperfect sleep, during which a series of images, either sensible or intellectual, are presented to the mind. These images are more or less vivid, and sometimes so lively as to impress the mind with the fullest conviction of their real existence. Joy, despair, pleasure and pain are excited by them, and the judgment would appear, in many cases, to possess the

power of deciding upon the propriety of the actions which they suggest, while, in other instances, the voluntary motions to which these images prompt are called forth by the will. The images, however, which, in the dreaming state, pass before the mental eye, are generally incongruous, disjointed, and absurd; but whatever forms they may assume, it may be set down, as a well established fact, that every part is derived from sensible ideas, formerly received during the waking state. So extensive, however, is the power which suggests these imaginary scenes, that their objects are as various as our ideas. Our feelings, sympathies and passions, appear to be excited as by realities, but our reasoning is weak and imperfect. In dreams, we seem to reason, to argue, and compare; and in all these circumstances, during sleep, we are highly gratified, and think that we excel. If, however, we remember our dreams, our reasoning we find to be weak—our arguments inconclusive, and our compositions trifling and absurd. Many of the images of our dreams we fancy to be new; but if we can recollect them when awake, we find that this opinion arose from our imperfect recognition, and we shall then be able to recall their prototypes. We seem to think, also, that some place which is presented in our sleep, is more beautiful and glorious than any which has before been seen by us. Yet, on awaking, we shall find this splendour a thing of shreds and patch-work, made up of heterogeneous and disjointed vestiges of what was before offered to the senses. It is nevertheless true, that during the imperfect state of sleep, when dreaming takes place, intellectual operations are sometimes effected in a surprising manner; difficulties being occasionally solved, which foiled our endeavours whilst awake, and by a happy combination of images presented to the mind, compositions, poetical as well as others, are often effected with the greatest facility, and in the most happy manner. But in these rare cases, we apprehend that the intellectual faculties of the mind

are in full activity, and act with increased vigour, in consequence of the state of sleep into which the external senses have fallen, allowing them to concentrate themselves upon the object by which they are occupied. Something like this occurs in that deep concentration of the mind; that state of complete abstraction from the external objects by which he is surrounded, into which the student is frequently thrown when his mind is intently occupied with any interesting subject. It has been supposed that from age and reflection, our dreams become more consistent and philosophical; and that then, during sleep, the mind retains all its wonted powers. There is no doubt, that with the advance of life, our mind wanders less in the dreaming state; but this, it is reasonable to presume, arises from the sleep becoming then less perfect, rather than from any experience having been acquired in the act of dreaming. Dreaming then is to be considered as nothing more than a state of imperfect sleep, during which certain functions of the brain are in a state of more or less complete activity, whilst the other functions of that and the other organs are in repose. In other words, while the controlling power of the will is suspended, memory and imagination are in full operation; the images thus excited, being kept in a certain regular train by the force of association. The perceptions and ideas presented to the brain by the action of certain of the organs which compose that body, it will be easily understood, must recur the moment these organs awake; in other words, when they are brought into activity; and there are sufficient facts to prove that one or more of the organs of the mind are capable of acting, while the others are in a state of perfect repose; in the same manner as we can see without hearing or feeling, and vice versa. When one organ of the brain only is awake, the dream is simple—the dreamer caresses the object of his affections; he hears delightful music, or fights and overcomes his enemy, according to the character of

the particular organ the functions of which are in exercise. If several of the organs are in activity, the dream is complex; and in proportion to the number of organs which are exercising at the same time their functions, and the contrast which exists between the perceptions and ideas furnished by each, the more complicated will be the dream, the more discordant and extravagant the images of which it is composed. This simple and philosophical explanation of dreaming, for which we are indebted to the acute mind of Dr. Gall, divests its phenomena of all the mystery with which it was for so many years enveloped, and removes at once the terror and deception of which formerly dreams were the fruitful parent. Persons are the most subject to dreams, in whom, from a life of indolence and luxury, from protracted watchfulness, from intense application of the mind, or from the indulgence of any deep passion, or other mental affection, the due balance between the functions of the cerebral and the other organs of the body is destroyed, or, in whom, from disease, an excessive or morbid sensibility exists in those organs, which sympathize more immediately with certain portions of the brain. In other words, dreaming is produced by every cause which prevents or interrupts sound repose. In the healthful and robust, who, with cheerful and contented minds, pass their days in temperance and active exercise, sleep is seldom interrupted by dreams. While from the pillow of the slave of passion or of pleasure; of him, whose mind is weighed down, or rendered suspicious by a consciousness of guilt; of the midnight student, and wrapt enthusiast, sleep entirely flies, or is disturbed and interrupted by dreams. The character of our dreams depend greatly upon our waking thoughts, or those objects to which, from the peculiar construction of our minds, our attention is habitually directed. The lover dreams of his mistress, and the images more immediately connected with the passion which absorbs his waking thoughts; and, ac-

ording as his character is bold or timid, will his dreams be pleasing, or the reverse. The miser dreams of his hoards, either that he adds to their amount, or is in danger of having them torn from his gripe by thieves, or some unforeseen casualties. And the guilty suffer in imagination the detection of their crimes, and the punishment they are conscious they so justly merit. We seldom dream during the first hours of sleep, unless when the brain is extremely irritable; but in proportion as the organs become recruited by repose, they are most disposed to have their functions brought into action; and hence, dreams most frequently occur towards the period of awaking in the morning. Various causes of irritation, acting upon the stomach, intestines, and other internal organs, by calling certain functions of the brain into action, give rise to dreaming. Indigestible food in the stomach, or a hearty supper just before retiring to rest, will induce often that distressing train of symptoms, called nightmare. In the disease, termed water in the chest, as well as in certain affections of the heart, by which an impediment is offered to the free circulation of the blood, dreams often occur. In the former case, particularly, the patient imagines himself exposed to some imminent danger, and awakens with a start, in consequence of his efforts to escape from it. Impressions made upon certain of the external senses, when, during that state of imperfect sleep in which dreaming takes place, they are partially active, or are readily excited to act by their appropriate stimuli, form frequently the principal link in the images which constitute our dreams. Thus, when the sense of touch is not in complete repose, impressions made upon the surface of the body, whether they be painful, or of cold, or heat, frequently excite in the mind, a train of images, during sleep, of which these sensations seem to form a conspicuous part. So, also, if the organs of hearing be partially awake, certain noises will rouse one or more of the other organs of the brain,

and give rise to dreams; words whispered in the ear of the sleeper will likewise sometimes cause him to dream, even to reply to questions, and thus reveal his most secret thoughts. There is a species of dreaming in which the will has complete power over the muscles of voluntary motion, while the body is so completely asleep, that it requires a pretty vigorous shock to wake the individual in whom it occurs. This constitutes *sleep-walking*, which see.

Dreams have been supposed to indicate to the sleeper some evil or fortunate event which is about to befall him, under a figurative or allegorical form. On this subject, the following remarks of Dr. Beattie are so much to the purpose, that with these we shall conclude the present article.

When we have an uncommon dream, we ought to look—not forward with apprehension, as if it were to be the forerunner of calamity; but rather backward, to see if we can trace out its cause, and whether we may not, from such a discovery, learn something that may be profitable to us.

I dream, for example, that some of my teeth drop out. That, say the vulgar, betokens the loss of friends. No doubt, if I have any friends, and should happen to outlive them, the time must come when I shall lose them. But the dream has nothing to do with either the loss or the acquisition of friends: nor does it direct my thoughts to futurity at all. I wish, rather, to know to what state of my body this dreaming may have been owing: which, if I can, who knows but I may draw advantage from my dream? My teeth seemed to drop out. Perhaps at that time my gums were affected with some painful sensation, or convulsive movement. Might not this be occasioned by too heavy a supper, or by an ill-digested dinner? Let me eat lighter food, and in less quantity, for some time, and observe, whether the same vision makes a second appearance. I make the trial; and I find that my sleep is sounder, and my

dreams more agreeable. This is making a right use of dreams, and in this way I am persuaded, that persons, who divest themselves of superstition and prejudice, might make important discoveries in regard to their health.

In some constitutions, certain dreams go before, or accompany, the beginnings of certain diseases. Where, for example, there is any tendency to fever, we are apt to dream of performing, with great labour, some work, we know not precisely what, in which we never make any progress. This imagination will occur in sleep, even when one has no means of observing, while awake, any symptoms that could lead one to suspect one's health to be in danger; and when it does occur, may it not serve as a warning to make some change in the ordinary regimen, to eat or drink less than usual, or have recourse to some of those other methods, whereby acute distempers are prevented? In general, when one is haunted with disagreeable dreams, it may, I think, be taken as a sign, that something is wrong in the constitution, and therefore that temperance, fasting, or exercise may be requisite, to avert the impending evil. And these are remedies, which one may have recourse to, and in regard to which one may venture to make a few experiments, in almost any circumstances. Agreeable dreams I would take for the signs of health; and consider them, accordingly, as good, and not evil.

This theory, which I have reason to think is not without foundation, may, to such as acquiesce in it, prove a good antidote to those idle superstitions in the affair of dreaming, which have been too prevalent in all ages.

After hinting that dreams may be of use in the way of physical admonition; what if I should go a step further, and say, that they may be servicable, as a means of moral improvement? I will not affirm, however, as some have done, that, by them, we may make a more accurate discovery of our temper and prevailing passions, than by observing what passes in our minds when

awake. For in sleep we are very incompetent judges of ourselves, and of every thing else; and one will dream of committing crimes with little remorse, which, if awake, one could not think of without horror. But as many of our passions are inflamed or allayed by the temperature of the body, this, I think, may be affirmed with truth, that, by attending to what passes in sleep, we may sometimes discern what passions are predominant, and so receive good hints for the regulation of them.

Intemperance of every kind, in eating or drinking, in sleep or watching, in rest or exercise, tends to make dreams disagreeable; and therefore, one end of dreaming may be to recommend temperance and moderation. For the time we employ in sleep bears a great proportion to the whole of human life; and if there be any expedient for rendering that part of time agreeable, it is surely worth while to put it in practice. Habits of virtue and soberness, the repression of turbulent desires, and the indulgence of pious, social, and cheerful dispositions, are, for the most part, effectual in giving that lightness to the animal spirits, and that calm temperature to the blood, which promote pleasurable thoughts through the day, and sweet slumber and easy dreams through the night.

As agreeable thoughts accompany good health; as violent passions, and even madness, are the effect of certain diseases; as dullness and confusion of thought, may be occasioned by a loaded stomach; and as the swallowing of much strong liquor produces a temporary madness—as our thoughts, I say, when we are awake, are so much determined by our bodily habit, it is no wonder that they should be still more liable to such influence when we are asleep.

SOMNAMBULISM.

The propensity which some people have to walk in their sleep is termed Somnambulism. This very dangerous and morbid inclination is observed in

different degrees. Sometimes persons merely get out of bed, and repeat the actions of the day, or go to the places they usually frequent at other times; sometimes they climb to the tops of houses, or go to places which, in their waking hours, they would shudder to approach. Like dreaming, and various mental operations, we are ignorant of the cause of sleep-walking. To cure it, we should correct whatever bodily ailment we can discover, especially should we attend to any symptom more particularly indicating derangement of the nervous system. Precautions should always be taken to prevent sleep-walkers from hurting themselves; by having a person to watch them while asleep, and apply proper restraint when they rise to walk; or by putting a vessel of water by the bedside, into which they will step, and be immediately awakened. The windows should be properly secured. Perhaps altering the time of taking the last meal, or the time of going to bed, might contribute to break the habit.

Somnambulism, says Dr. Abercrombie, appears to differ from dreaming, chiefly in the manner in which the bodily functions are affected. The mind is fixed in the same manner as in dreaming, upon its own impressions, as possessing a real and present existence, in external things; but the bodily organs are more under the control of the will, so that the individual acts under the influence of his erroneous conceptions, and holds conversation in regard to them. He is also, to a certain degree, susceptible of impressions from without, through his organs of sense; not, however, so as to correct his erroneous impressions, but rather to be mixed up with them. A variety of remarkable phenomena arise out of these peculiarities, which will be illustrated by a slight outline of this singular affection.

The first degree of somnambulism generally shows itself by a propensity to talk during sleep; the person giving a full and connected account of what passes before him in dreams, and often revealing his own secrets, or those of

his friends. Walking during sleep is the next degree, and that from which the affection derives its name. The phenomena connected with this form, are familiar to every one. The individual gets out of bed ; dresses himself ; if not prevented, gets out of doors ; walks, frequently over dangerous places in safety ; sometimes escapes by a window, and gets to the roof of a house ; after a considerable interval, returns, and goes to bed ; and all that has passed, conveys to his mind merely the impression of a dream. A young nobleman, mentioned by Horstius, living in the citadel of Breslau, was observed by his brother, who occupied the same room, to rise in his sleep, wrap himself in a cloak, and escape by a window to the roof of the building. He there tore in pieces a magpie's nest, wrapped the young birds in his cloak, returned to his apartment, and went to bed. In the morning, he mentioned the circumstances as having occurred in a dream, and could not be persuaded that there had been any thing more than a dream, till he was shown the magpies in his cloak. Dr. Pritchard mentions a man who rose in his sleep, dressed himself, saddled his horse, and rode to the place of a market which he was in the habit of attending once every week : and Martinet mentions a man who was accustomed to rise in his sleep, and pursue his business as a saddler. There are many instances on record, of persons composing during the state of somnambulism ; as of boys rising in their sleep, and finishing their tasks, which they had left incomplete. A gentleman, at one of the English Universities, had been very intent during the day in the composition of some verses, which he had not been able to complete ; during the following night, he rose in his sleep, and finished his composition ; then expressed great exultation, and returned to bed.

In these common cases the affection occurs during ordinary sleep ; -but a condition very analogous is met with, coming on in the day-time, in paroxysms, during which the person is af-

fected in the same manner as in the state of somnambulism, particularly with an insensibility to external impressions : this presents some singular phenomena. These attacks, in some cases, come on without any warning ; in others, they are preceded by noise, or a sense of confusion in the head. The individuals then become more or less abstracted, and are either unconscious of any external impression, or very confused in their notions of external things. They are frequently able to talk in an intelligible and consistent manner, but always in reference to the impression which is present in their own minds. They, in some cases, repeat long pieces of poetry, often more correctly than they can do in their waking state, and not unfrequently, things which they could not repeat in their state of health, or of which they were supposed to be entirely ignorant. In other cases, they hold conversation with imaginary beings, or relate circumstances or conversations which occurred at remote periods, and which they were supposed to have forgotten. Some have been known to sing in a style far superior to any thing they could do in their waking state ; and there are some well-authenticated instances of persons in this condition expressing themselves correctly, in languages with which they were but imperfectly acquainted. I had lately under my care, a young lady, who is liable to an affection of this kind, which comes on repeatedly during the day, and continues from ten minutes to an hour at a time. Without any warning, her body becomes motionless, her eyes open, fixed, and entirely insensible ; and she becomes totally unconscious of any external impression. She has been frequently seized while playing on the piano, and has continued to play over and over, a part of a tune, with perfect correctness, but without advancing beyond a certain point. On one occasion, she was seized after she had begun to play from the book a piece of music which was new to her. During the paroxysm, she continued the part

which she had played, and repeated it five or six times, with perfect correctness ; but, on coming out of the attack, she could not play it without the book.

During the paroxysms, the individuals are, in some instances, totally insensible to any thing that is said to them ; but in others, they are capable of holding conversation with another person, with a tolerable degree of consistency, though they are influenced, to a certain degree, by their mental visions, and are very confused in their notions of external things. In many cases, again, they are capable of going on with the manual occupations in which they had been engaged before the attack. This occurred remarkably in a watchmaker's apprentice, mentioned by Martinet. The paroxysms in him appeared once in fourteen days, and commenced with a feeling of heat, extending from the pit of the stomach to the head. This was followed by confusion of thought, and this, by complete insensibility ; his eyes were open, but fixed and vacant, and he was totally insensible to any thing that was said to him, or to any external impression. But he continued his usual employment, and was always much astonished, on his recovery, to find the change that had taken place in his work since the commencement of the paroxysm. This case afterwards passed into epilepsy.

Some remarkable phenomena are presented by this singular affection, especially in regard to exercises of memory, and the manner in which old associations are recalled into the mind ; also, in the distinct manner in which the individuals sometimes express themselves, on subjects with which they had formerly shown but an imperfect acquaintance. In some of the French cases of epidemic "extase," this has been magnified into speaking unknown languages, predicting future events, and describing occurrences of which the persons could not have possessed any knowledge. These stories seem, in some cases, to resolve themselves merely into embellishment of what really

occurred ; but in others, there can be no doubt of connivance and imposture. Some facts, however, appear to be authenticated, and are sufficiently remarkable. Two females, mentioned by Bertrand, expressed themselves, during the paroxysm, very distinctly in Latin. They afterwards admitted that they had some acquaintance with the language, though it was imperfect. An ignorant servant girl, mentioned by Dr. Dewar, during paroxysms of this kind, showed an astonishing knowledge of geography and astronomy ; and expressed herself, in her own language, in a manner which, though often ludicrous, showed an understanding of the subject. The alternations of the seasons, for example, she explained by saying, that the earth was set *a-gee*. It was afterwards discovered, that her notions on these subjects, had been derived from overhearing a tutor giving instructions to the young people of the family. A woman who was, some time ago, in the Infirmary of Edinburgh, on account of an affection of this kind, during the paroxysms, mimicked the manner of the physicians, and repeated correctly some of their prescriptions in the Latin language.

PHRENOLOGY.

The word phrenology, signifies a discourse on the brain ; it is applied to designate the doctrines advanced by Gall and Spurzheim in relation to the structure and functions of the brain. According to these gentlemen, the brain is not a single organ, but a collection of mental organs, each one destined to perform a particular function. A mental organ is a material instrument, by which the mind, in this life, enters into particular states, active and passive. The mental faculties they divide into those of the *feelings*, and those of the *intellect*. The first, are subdivided into *propensities* and *sentiments*. The second, or intellectual faculties, they divide into the *knowing* and *reflecting*. The propensities do not give origin to ideas ; they merely produce sensations of a kind peculiar

to each. They are common to man and other animals. They are *amativeness*—the propensity to physical love; *philo-progenitiveness*—the instinctive love of offspring; *concentrativeness*, the function by which the mind maintains two or more powers in simultaneous action, and determines the individual to fixedness of location and purpose; *adhesiveness*, the instinctive attachment for surrounding objects, whether animate or not,—it disposes to friendship and society; *combaticiveness*, instinctive desire to combat; it manifests itself by anger and rage; *constructiveness*, instinctive tendency to construct; in man, directed, by the predominance of other faculties in different individuals, to various objects; in the lower animals, to form their burrows, dens, or nests; *acquisitiveness*, instinctive tendency to acquire and possess; the love of property and wealth is founded on it; its predominance causes avarice; *secretiveness*, instinctive tendency to conceal the thoughts, desires and emotions of the mind, until the understanding has decided upon their fitness and probable consequences; when properly balanced by other organs, it produces prudence; when it predominates, it causes slyness and cunning. The *sentiments* are mere emotions, or tendencies to emotion; they produce no ideas; many of them are possessed by other animals, as well as man; some are peculiar to the latter. The first, are *self-esteem*—*love of approbation*—*cautiousness*, and *benevolence*, which are fully indicated by their names. Those peculiar to man, are *veneration*—*hope*—*ideality*, or the faculty of the mind which causes in individuals a desire for something more perfect than what ordinarily presents itself, which inspires them with enthusiasm and exaggeration, and prompts to embellishment and splendour of conception—*wonder*, the sentiment of the marvellous, or *marvellousness*, proneness to belief in mysterious incidents, ghosts, sorcery and witchcraft: *conscientiousness* and *firmness*. The organs upon whose functions the

ments and propensities just enumerated depend, are situated in the posterior and inferior portion of the brain; the organs of the intellectual faculties, now to be enumerated, are seated in the anterior and upper part of the brain. They are *eventuality*, or the desire and ability to know facts and things; *form*, the faculty of judging of form; *size*, the faculty of judging of magnitude—*weight-colouring*—*locality*, the faculty of remembering and recognizing places; *order*—*time*—*number*—*tune*—*language*—*comparison*—*casualty*—*wit*—*imitation*. The greater the development of the individual organs, the more active the propensity, sentiment, or intellectual faculty, to which they are destined, becomes. The development of the organs is caused by their frequent exercise. The predominance of one or more of the mental organs, stamps the peculiar moral or intellectual character of the individual.

The mind is regarded as simple, its substance or essence being unknown. It is furnished with highly interesting susceptibilities, and the vast apparatus of mental organs, to enable it to manifest its energies and enter into different states. Thus, when aided by optic and auditory organs, the mind sees and hears; in like manner, when assisted by an organ of cautiousness, it experiences fear; by an organ of casualty, it reasons. Its power of seeing depends on the perfection of the optic organs; and in like manner, its power of experiencing the emotion of beauty is in proportion to the perfection of the organ of ideality. The optic organs, when stimulated by light, induce in the mind the active state termed seeing; and the organ of benevolence, excited by an object in distress, produces the mental state called compassion.

States of the mind are either simple or complex. A simple state is that in which a single organ only acts upon the mind. Seeing is a simple state, arising from the activity of the optic organs. A complex state occurs when the mind is acted upon by several organs simultaneously, or in quick suc-

cession. Thus an insult being offered to an individual in an august assembly, the organ of self-esteem will produce the feeling of offended dignity, and that of destructiveness will prompt the desire of revenge; the organ of veneration, however, will call up the emotion of respect or awe for the personages present; and those of cautiousness and love of approbation will give rise to the fear of offending them; and all these contending emotions may coexist.

Of course, the foregoing is a very superficial sketch of the leading propositions, the explanation and application of which constitute the doctrines of phrenology; sufficient, however, has been said to give the reader a general idea of that science.

TEMPERAMENTS.

By the word temperament, we mean the differences that are observed between the constitutions of men, dependent upon the relative predominance of one or the other of their organic systems. The ancients referred these differences of constitution to the predominance of the humours, which they imagined to perform so important a part in the human economy. As these humours were four, they, of course, described four leading temperaments; 1st, the *sanguineous*, from the predominance of the *blood*; 2d, the *bilious*, from the predominance of the *bile*; 3d, the *pituitous*, from the predominance of the *phlegm*, and 4th, the *melancholic*, from the predominance of the *black bile*. These views have, of course, been rejected, in common with the fanciful physiology upon which they were based; and the moderns have adopted, as a more philosophic basis for the individual differences, constituting temperaments, the predominance of some one of the organic systems. This has given rise to a new division, and a greater extension of the number of the temperaments. To enter into these divisions, and enumerate the temperaments of different authors, would be out of place in a work like the present. We have, therefore, adopted the divi-

sion in most common use, which is into the *sanguine—choleric—melancholic—phlegmatic*, and *nervous temperaments*. In the first, the *heart* and *blood-vessels* predominate; in the second, the *liver* and *biliary organs*; in the third, the *stomach*; in the fourth, the *lymphatics*; in the fifth, the *nervous system*.

Persons of the sanguine temperament have, in general, a large chest, a rich fully oxygenated blood, a florid hue of the countenance and surface of the body generally. In them the pulse is strong and full, the appetite keen, the heat of the body fully developed and uniformly distributed; hence, persons of this temperament resist with comparative ease the depressing influence of cold; the secretions of the bowels are regular; their muscles are large and prominent; their disposition is generally sprightly and active; they are inclined to indulge in sensual gratifications, and commonly their bodies are inclined to corpulency. In some individuals endowed with the sanguine temperament, the superior development of the intellectual faculties diminishes or holds in restraint the desire for sensual pleasure, and leads to the cultivation of pursuits of a contemplative or sober character. The diseases peculiar to this temperament are those of an acute and inflammatory kind.

Persons of the choleric or bilious temperament have likewise, ordinarily, a capacious chest, well-developed muscles, strong and full pulse, and an abundant distribution of animal heat throughout the system. They have often a tendency to corpulency. They have not, however, the florid appearance of the sanguine temperament, but on the contrary a somewhat jaundiced or sun-burnt aspect. Persons of this temperament possess, in general, a hardy and vigorous constitution. Their spirits, if not decidedly lively, are often cheerful and animated. If their minds be occasionally subject to gloom, this is quickly succeeded by brighter and more cheering thoughts. Irritability of

temper, great decision of character, and firmness of purpose, are the most striking traits of this temperament. The individuals possessed of it are prone to indulge in sensual gratifications, by which are meant the pleasures of the senses generally. They are liable to acute inflammations, but less so than those of the sanguine temperament; and while, in the latter, the inflammation principally attacks the organs of the chest, in the choleric temperament it is more usually seated within the abdomen. This temperament is also peculiarly liable to chronic affections of the alimentary canal.

The melancholic temperament possesses many of the characteristics of the choleric; is met with principally in females and persons occupied in sedentary employments, and in those of retired habits and thoughtful dispositions. The countenance, in persons of this temperament, exhibits a yellowish tinge, varying in degree; the chest is narrow; the muscles are imperfectly developed; the generation of animal heat is extremely limited, as is evident from the great susceptibility of the system to cold; the pulse is rather small, becoming, from slight exertion, frequent; the mind has a tendency to despondency, and the abdominal organs are exceedingly liable to be disordered, and all the striking symptoms of indigestion appear. The organs of the chest are also very often affected with chronic diseases.

In the phlegmatic temperament the chest is capacious; animal heat, however, is by no means abundantly generated; the pulse is slow, soft, destitute of force, and the surface of the body is rather pale than florid. The disposition is neither buoyant nor restless, and the functions of the digestive organs are slowly if not imperfectly performed, and yet persons of this temperament are often great eaters. The muscles are but slightly developed, but

every part of the body, after the age of thirty, is prone to obesity. The nervous system possesses only a limited degree of sensibility, and the mind, though it may evince considerable speculative ability, seldom manifests much activity in reference to those pursuits which demand bodily exertion. The prevailing diseases of this temperament are chiefly of a chronic character, and have a great tendency to produce dropical effusions.

The nervous temperament is peculiarly distinguished by an acute susceptibility to impressions, frequently exhibiting itself in an irritable and hasty disposition. Persons of this temperament are generally remarkable for talent; they are active, mostly lean, and very rarely possess a capacious chest with its attendant conditions of health and vigour. The countenance is pale, the features sharp and intelligent, and the constitution delicate and soon disordered by sensual indulgences. This temperament occurs most frequently in females, though many striking examples of it occur in the other sex. Notwithstanding the apparent feebleness of the constitution accompanying the nervous temperament, persons possessing it are nevertheless often capable of undergoing great exertions, frequently, too, with more ease than those who are considerably more robust in appearance. The nervous temperament is predisposed to both acute and chronic diseases, but more particularly the latter. The acute are most frequently seated in the respiratory organs; the chronic, either in the organs of the chest or abdomen, or in some part of the nervous apparatus.

There is, after all, however, something very fanciful in all the divisions of the temperaments; many of them are the effect of education and manner of living; and others, of an over-excitement of certain organs, by which these are brought into a condition, bordering on disease.

PART II.

HYGIENE;

OR,

THE MEANS OF PRESERVING HEALTH

HEALTH.

HEALTH is that state of the human body, in which the structure of all the parts is sound, and their functions regularly and actively performed, rendering the individual fit for all the duties and enjoyments of life. When a person has received a sound constitution from nature, his health is to be preserved by a proper regulation of the various circumstances, internal and external, on which animal life is dependent. These are, principally, air and exercise, clothing, food and drink, the excretions and discharges, sleep and waking, and the management of the passions of the mind.

The variety of temperaments or constitutions renders it possible for the phenomena of health to be very different in different persons; hence what would preserve the health of one would occasion disease in another. Persons of a *sanguine* temperament, whose vessels are full, and whose fibres are firm and active, easily excited to motion, and often to irregular actions, bear evacuations well; and have their health best promoted by abstinence and low living, by avoiding excess of every kind, and particularly guarding against cold after active bodily exertions. The *bilious* temperament, with a constitution more acutely sensible, always more irritable, requires the same precautions as the sanguine; but the evacuations best adapted, which are indeed almost in-

dispensable to this kind of constitution, are the free and frequent use of the milder laxatives. To preserve the health of the *melancholic*, of those whose complexion is dark, and whose powers are torpid, whose mind is dull, but persevering, much exercise is required to assist digestion and to determine the circulating fluids to the skin. From the torpor of the bowels, to which persons of this temperament are peculiarly liable, they will demand the occasional use of purgatives of the aloetic kind; their occupations and amusements should be varied and interesting to the mind. The *phlegmatic* temperament is pale in complexion, languid in its exertions; the vessels, if full, are torpid, the constitution inactive; the mind not easily excited to exertion. The diet, in this temperament, requires to be nutritive and somewhat stimulating, though it ought not to go the length of what would be called high living; a small proportion of good wine may be allowed, but never to excess; health is merely not injured by that which would most certainly excite fever in the sanguine or bilious. The bowels should be kept open, but not much purged, for the phlegmatic do not bear evacuations well, more especially of blood; and they should use constant, regular exercise in the open air. These observations may appear to savour too much of the exploded pathology of other times, when all the phenomena of health and

disease were considered to depend on the predominance of certain humours, as the phlegm, the blood, the yellow and the black bile. In all these speculations the ancients were unquestionably wrong; but the different temperaments and appearances of men are sufficiently obvious to the most careless observer; and the terms which are employed to express these varieties may now be used without regard to their original derivation, and without occasioning any material error.

The health of females has some peculiarities arising from the delicacy of their frame, the monthly discharge, the state of pregnancy, and of nursing. All these circumstances constitute a condition very different from the robust and vigorous strength of man in the prime of life; yet equally perfect, relatively to the sex and the individual. Such functions require, for their healthy performance, the attentions peculiar to themselves. The irritability of infants, and the mobility of boyhood are consistent with good health, though they would be unsuitable at a more advanced period of life.

Health varies in people of different occupations. The acuteness of the senses which is necessary in some employments, would be morbid in persons otherwise engaged. There is a state of great vigour and perfection of the different faculties, with great muscular strength, which is often spoken of as a state of *high health*; but, as Celsus says, a person so circumstanced, should look with a jealous eye on his attainments. Such a state is incapable of remaining at its acmé; the balance is so nicely poised that a very little external agency or incautious conduct readily excites some disease. This state of extreme muscular vigour is sometimes artificially induced for the brutal purpose of prize-fighting, and the method of doing this is called *training*.

The foregoing remarks on what constitutes health in different individuals, are principally applicable to those whose constitutions, though varying from one another, may all be consi-

dered as sound. But some have various diseases or predispositions to disease, either derived from parents or acquired in the progress of life, which render health with them only a comparative term. The scrofulous can hardly be said in strictness ever to be in perfect health; but their disease may be dormant; and in favourable circumstances, may permit the subject of it to enjoy an exemption from pain and inconvenience, to the end of a long life. Gouty patients may also enjoy good health during the intervals of their attacks.

SECTION I.

AIR.

AIR is that invisible, transparent, compressible, and elastic fluid, which everywhere surrounds our globe; and which generally receives the name of atmosphere. It is the medium in which we live and breathe, and without which we could not for a moment exist. Atmospheric air, or that by which we are usually surrounded, is not a simple, but a compound body, consisting of at least four distinct substances, viz: *oxygen, azote, carbonic acid, and aqueous vapour*.

The two former substances, however, constitute almost the whole of the atmospheric air near the surface of the earth; the other two are variable in their proportions; the first exists only in minute quantities, which it is difficult to appreciate. Vital air, or oxygen, which constitutes about one-fourth of the atmosphere, is necessary to respiration and combustion, and an animal immersed in it will live much longer than in the same quantity of common air. The remaining three-fourths, called azote, or mephitic air, is totally incapable of supporting respiration or combustion for an instant.

If a candle be included in a given quantity of atmospheric air, it will burn only for a certain time, and then be extinguished, as the oxygen is all ab-

sorbed, and that which remains is incapable of supporting flame. If an animal be put in a given quantity of common air, it will live only a certain time, at the end of which, the air will be found diminished about one-fourth, and the remainder will neither support flame nor life.

The oxygen which is received into the lungs of animals from the atmosphere, communicates the red colour to the blood, and is the principal agent which imparts heat and activity to the system. When animals die for want of vital air, their blood is always found black. Independently of its destruction by the respiration of men and other animals, there is a constant consumption of the oxygenous portion of atmospheric air, by the burning of combustible bodies; by the fermentation and putrefaction of vegetable substances; and by the calcination of metals.

A diminished proportion, therefore, of the oxygen of our atmosphere, and an increased amount of carbonic acid and other deleterious gases, is undoubtedly produced from the innumerable processes of combustion, putrefaction, and respiration of men and animals, particularly in populous cities, the atmosphere of which is almost constantly prejudicial to health. The atmospheric air is never absolutely pure and salubrious in any situation, but is always mixed with heterogenous particles, and these different states and changes produce very perceptible effects on the constitution.

In the open country there are few causes to contaminate the atmosphere, and the vegetable productions continually tend to make it more pure. The winds which agitate the atmosphere, and constantly occasion its change of place, waft the pure country air to the inhabitants of the cities, and dissipate that from which the oxygen has been in a great measure extracted. Were it not for this wise provision of the author of nature, from the daily combustion of an immense quantity of fuel, the numerous substances constantly undergoing putrefaction, the respiration and

exhalations of a large number of men and animals, the air in populous towns would soon become unfit for the purposes of life.

The air of any place where a numerous body of people is assembled together, especially if to the breath of the crowd, there be added the vapour of a great number of candles or lamps, is rendered extremely prejudicial, as these circumstances occasion a great consumption of oxygen.

The practice of burning lamps with long wicks, and thereby filling the room with smoke, is very detrimental to health; and it is not a little surprising that common sense is so devoid of all philosophy, as not to detect and avoid a vapour so pernicious and poisonous when received into the lungs.

The fact is well known, that when air has been long confined and stagnated in mines, wells, and cellars, it becomes so extremely poisonous as to prove immediately fatal to those who imprudently attempt to enter such places. No person should descend into a well or cellar, which has been long closed, without first letting down a lighted candle; if it burns clear there is no danger, but if it cease to burn, we may be sure that no one can enter without the utmost danger of immediate suffocation. It sometimes happens also, that when air is suffered to stagnate in rooms, hospitals, jails, ships, &c. it partakes of the same unwholesome or pernicious quality, and is a source of disease. It is obvious, therefore, that in all confined or crowded places, the correcting of vitiated air, by means of cleanliness and frequent ventilation, is of the highest importance to health, and the most effectual preservative from disease. No accumulation, therefore, of filth about our houses, clothes, or in the public streets, should on any pretence be suffered to continue, especially during the heat of summer.

It is a very injurious custom for a number of persons to occupy or sleep in a small apartment, and if it be very close, and a fire be kept in it, the danger is increased. The vapour of *char*

coal, when burnt in a close apartment, produces the most dangerous effects. Our houses, which are made close and almost air-tight, should be ventilated daily, by admitting a free circulation of air to pass through opposite windows; and even our beds ought to be frequently exposed to the influence of the open air.

Houses situated in low marshy situations, or near lakes or ponds of stagnant water, are constantly exposed to the influence of damp and noxious exhalations.

Among the most powerful means furnished by nature for correcting air which has become unfit for respiration, is the growth and vegetation of plants. The generality of plants possess the property of correcting the most corrupt air within a few hours, when they are exposed to the light of the sun; during the night or in the shade, however, they destroy the purity of the air, which renders it a dangerous practice to allow plants to vegetate in apartments occupied for sleeping.

MARSHES.

The neighbourhood of marshes is peculiarly unwholesome, especially towards the decline of summer and during autumn, and more particularly after sunset. The air of marshy districts is loaded with an excess of dampness, and with the various gases given out during the putrefaction of the vegetable matters contained in the waters of the marsh. Persons exposed to this air are liable to various diseases, but especially ague, bilious fevers, diarrhœas, and dysenteries. They who breathe it habitually exhibit a pallid countenance, a bloated appearance of the abdomen and limbs, and are affected with loss of appetite and indigestion. Health is best preserved in marshy districts by a regular and temperate life—exercise in the open air during the middle of the day, and by retiring as soon as the sun sets, within the house, and closing all the doors and windows. The sleeping apartment should be in the upper story, and rendered perfectly dry by a fire,

lit a few hours before going to bed, and then extinguished. Exposure to the open air should, if possible, not take place in the morning before the sun has had time to dispel the fog, which, at its rising, covers the surface of the marsh. Persons who are intemperate, or use ardent spirits habitually, are those most liable to suffer from the unwholesome air of marshes; such generally perish from diseases of the liver and dropsy.

NIGHT AIR.

Many diseases are brought on by imprudent exposure of the body to the night air; and this, at all seasons, in every climate, and variety of temperature. The causes of this bad property of the night air, it is not difficult to assign. The heat is almost universally several degrees lower than in the daytime; the air deposits dew and other moisture; the pores of the skin are open, from the exercise and fatigues of the day; the evening feverishness leaves the body in some degree debilitated and susceptible of external impressions; and from all these concurrent causes, are produced the various effects of cold acting as a check to perspiration; such as catarrhs, sore throats, coughs, consumptions, rheumatisms, asthmas, fevers, and dysenteries. In warm climates, the night air and night dews, with their tainted impregnations, act with much malignancy on the unwary European, who too often, after an imprudent debauch, or in a state of fatigue, absurdly lays himself down in the woods or verandahs, to receive the full effects of the morbid powers, then unusually active. In civilized life, and in crowded towns, how many fall victims to their own imprudence, in exposing themselves to the cold, the damp, and the frostiness of the night air! Issuing from warm apartments with blazing fires, or from crowded churches, theatres, or ball-rooms, with exhausted strength, profuse perspiration, thin dresses, and much of the person uncovered, how many are attacked with a benumbing cold and universal shivering, which prove the fore

runners of dangerous inflammations of the brain, of the lungs, or of the bowels, which either cut them off in a few days, or lay the foundation of consumption or other lingering illness. Such being the dangers of exposure to the night air, it ought to be inculcated on all, both young and old, to guard against them, by avoiding all rash and hasty changes of place and temperature, by hardening the frame by due exercise and walking in the open air in the daytime; and on occasions where the night air must be braved, taking care to be sufficiently clothed; and to avoid drawing in the cold air too strong or hastily with the mouth open.

SEA AIR.

The air upon the sea and in its neighbourhood is generally distinguished by its greater coldness, purity, and sharpness; and is therefore in many cases directed to patients, whose complaints do not affect their respiration, and who have vigour of constitution enough to derive benefit from the stimulus which such air occasions. A residence by the sea-side is beneficial to persons of a scrofulous habit and debilitated constitution, provided they take care not to expose themselves to cold and damp; and in the fine season, when there is no reason against it, they ought to bathe. In complaints of the chest, the use of sea-bathing, and a residence near the sea, are more questionable; and by such, an inland rural situation, in a mild equable climate, is to be preferred. A sea voyage has long been famous for its good effects at the commencement of consumptive complaints; and these good effects may be ascribed partly to the good air at sea, partly to the affection of the stomach and skin induced by sea-sickness, and to the excitement of the mind, caused by change of scene and occupations.

VENTILATION.

The air, as we have already remarked, cannot become stagnant or unchanged for even a short period without its be-

coming unfit for respiration, and destructive to the health of those who breathe it. The greater number of persons by whom an apartment or any given place is occupied, the more quickly the air becomes deteriorated, and the greater the necessity of a free ventilation. The streets of a city should, therefore, be so laid out, as to ensure a constant and free circulation of air; hence the unwholesomeness of a residence in narrow alleys, courts, and passages. Not less important is the continued renewal of the air of our apartments—the ventilation of which, however, should be so conducted as to prevent a current of air from blowing directly upon the persons within them. Our bed-chambers, in particular, should be freely ventilated during the day; and even at night, when the windows are closed, the chimney should be left open, or, if the room is small, and the weather sultry, a door, opening into another room. No consideration of economy should prevent the most constant attention being paid to proper ventilation, so essential is the latter to health and comfort.

CELLARS.

It is important that cellars should be perfectly dry, kept strictly clean and freely ventilated. The damp and foul air so frequently generated in cellars where dryness, cleanliness, and ventilation are not properly attended to, is often the cause of disease, not only in the persons who inhabit the house to which the cellar is attached, but in others residing in the immediate neighbourhood. No house can be considered a healthy residence, in the cellar of which water is allowed to stagnate: this may easily be obviated, in most situations, by a sink dug to gravel. The air of cellars can be preserved sufficiently dry and wholesome by free ventilation, the removal of all filth and corruptible materials, and frequently white-washing the walls. Cellars, especially when entirely under ground, are improper places of residence; appropriating them as places of residence

for the poor, or as workshops, should be prohibited by law.

HEAT.

The temperature of the human body, that is of its internal organs, is about 98 degrees of Fahrenheit's thermometer. This degree of heat is maintained independent of that of the surrounding medium, by the evolution of caloric within the body itself. Under ordinary circumstances, the human body is surrounded by an atmosphere many degrees colder than itself, and hence transmits constantly heat to the air; its energies are, therefore, tasked to evolve a sufficient amount of caloric to supply the loss thus occasioned. Nevertheless, when the temperature of the surrounding air greatly exceeds that of the body, and the latter is continually receiving heat from the former, its temperature is not raised in proportion. This arises in consequence of a diminished evolution of heat within, and of the increased transpiration from the surface causing the loss of a large amount of the caloric it receives. Hence, at first sight it might be inferred that the animal system is capable of being little influenced by the temperature of the atmosphere. This, however, is not strictly true; the changes in the temperature of the air cause in the body the sensation of heat or cold, according as they are to a higher or lower degree, and produce other important effects upon its various organs. Habitually subjected to an average temperature many degrees below its own, the body, when exposed to a heat of 98°, notwithstanding it can receive no increase of caloric from the air, experiences, nevertheless, a decided sensation of heat, and the skin and other organs are unduly stimulated. This arises from the animal heat being accumulated in the system. So, likewise, when suddenly exposed to a temperature many degrees below that to which we have been accustomed, but one, nevertheless, to which the term temperate may be applied, we experience a very considerable sensation of cold and all the functions of the

system suffer from its sedative effects—the caloric being extracted from the body more rapidly than it is evolved within. Every circumstance, likewise, by which the vital energies of the body are increased or diminished, will occasion the sensation of heat or cold to be experienced to a different extent, from the same degrees of atmospheric temperature. All degrees of heat beyond that of temperate, produce a stimulant effect upon the skin, and through it upon the different internal organs. If the elevation of temperature occur gradually, and is confined to only a few degrees, its effects are often beneficial; but if it occur suddenly, or is considerable, either the stimulation of the skin or of some one or more of the internal organs, is carried to the extent of producing disease, and we have inflammation either of the skin, brain, stomach, or bowels, of a more or less violent grade; or the over-stimulated organs fall into a state of indirect debility. In consequence of this, and the excessive perspiration which ensues, the vital powers of the system become exhausted, and are unable to resist the impression of any morbid cause, however slight, to which it may be exposed—as cold and damp, errors in diet, fatigue or a renewed excitation, from subsequent exposure to heat. It is in this manner that high degrees of atmospheric temperature become a source of disease. Heat is likewise an indirect cause of disease, by its action upon various putrefiable materials, causing the evolution of certain gaseous substances by which the purity of the air we breathe is destroyed.

COLD.

Whenever the air, or other medium in which the body is immersed, is of such a temperature as to abstract from the latter its heat, more rapidly than by the internal actions of the system it is generated, the sensation of cold will be produced; and the intensity of this sensation will always be in proportion to the rapidity with which the heat of the body is carried off, and to the

feebleness of the heat-generating powers of the system. Cold, or the abstraction of heat from the system, in a degree disproportionate to its powers of generating it, produces a sedative influence upon nearly all the organs. That is, it reduces their activity and diminishes or suspends their functions. It causes a diminution in the action of the blood-vessels and exhalants of the surface; hence, under its influence, the skin becomes pale, shrunk, and dry. It diminishes the action of the heart and arteries, as is evinced by the smallness, weakness, and diminished frequency of the pulse. The sensibility, first of the external parts of the body, and subsequently of the internal organs, is likewise diminished by the action of cold. Hence the numbness of the hands, fingers, and entire surface, as well as the diminished activity of the functions of the brain and nervous system generally, and the feebleness of the muscular action. It is by this sedative impression upon the nervous system of intense cold, that the almost irresistible inclination to deep sleep is produced in those exposed to very low degrees of temperature. The sudden application of cold occasions a hurried and irregular action of the respiratory organs, and when intense or long continued, it materially impedes, or prevents entirely the action of these organs, so that the respiration is so imperfectly performed that the change of the venous into arterial blood no longer takes place, and the lips, tongue, and external surface of the body assume a livid or leaden hue. The moderate and transient application of cold to persons in robust health, and of considerable energy of constitution, is generally followed by phenomena which have misled many into the belief that cold acts upon the animal system as a stimulant. Every one in health has experienced the bracing and invigorating influence of a bright winter's day, and has felt from it a healthful glow in his frame, and a degree of increased vigour throughout every organ. These effects, however, are not, strictly speaking, the immedi-

ate consequence of the low temperature to which the body is exposed, but they result from the reaction of the vital energies, after the first temporary reduction of their activity by the cold. The excitement of the surface and of the internal organs being reduced by the sedative influence of the reduced temperature, their susceptibility to the action of the ordinary stimuli is increased; hence subsequent exposure to a slight augmentation of temperature, exercise, the friction and warmth of the clothing, even the stimulus of the blood, as the heart renews its activity on the withdrawal of the sedative agent, will induce an augmented excitement on the internal and external surfaces. Hence the agreeable glow of the skin, the augmented vigour and increased activity of the system, the improved appetite and feeling of cheerfulness consequent upon a transient and moderate reduction of the temperature of the body. That these phenomena are solely to be referred to the reaction of the system, after a temporary diminution of excitement, is sufficiently established by the fact, that unless the system be endowed with a considerable degree of energy and activity, no such favourable effects will follow the action of cold. Upon the weak and exhausted, cold acts as a permanent debilitant; or if reaction takes place, it is only partial, being confined to some one or a few organs, in which it causes not a healthy activity, but disease.

There is not, indeed, a more frequent exciter of disease than cold, when applied to the body under certain circumstances. Were we to enumerate all the diseases to which cold gives rise, we should give a list of nearly all to which, in our variable climate, the human body is subject. The numerous inflammations of various parts, as the eyes, the throat, the chest, the lungs, the bowels; the inflammation of tendinous and membranous parts, constituting rheumatism; catarrh, called by way of eminence, *a cold*; the rose, fevers of various kinds, consumption; these and many more, closely follow

the application of cold; and whatever may be the distinction we make between predisposing and exciting causes, the plain, practical inference to be drawn, is the necessity of guarding against cold, and all those circumstances in its application on which depends its power of affecting the body with disease.

The circumstances which give to cold the power of producing bad effects on the body, are: 1. Its degree and intensity: a certain degree of it will either produce gangrene or mortification of a part of the body, or death of the whole. 2. The length of time during which it is applied: a transient exposure will do comparatively little harm; but long exposure is highly dangerous, as when a person has lost his way on a winter night. 3. When cold is applied with moisture. This is by far the most pernicious way in which cold can be applied. Hence the numerous ailments arising from damp or wet clothes, wet feet, damp rooms, bed-clothes, and the like; and the numerous sore throats, rheumatisms, &c. that follow such exposure. 4. Cold is very hurtful when applied in a stream or current of air; hence the impropriety of sitting or sleeping near an open window, and the danger of cross currents of air in hot rooms and crowded assemblies. 5. One of the circumstances most hurtful in the application of cold, is its being a sudden change of temperature from heat to cold, without the body being properly protected by sufficient clothing. Hence the frequent colds and pleurisies that occur, when cold suddenly comes on after hot and moist weather; and hence the numerous diseases which assail those who leave warm and crowded public places, to be exposed to the sharp air of a frosty night. Hence the fair votaries of pleasure and dissipation so often fall a sacrifice to the destructive pursuit; and hence the sorrow for many a lovely youth, who, on leaving the dance, receives the chilling blast that proves to be the call to an early tomb.

There are certain circumstances in

the constitution itself, which render it very liable to be affected with cold.

1. Weakness and diminished vigour of the circulation by previous disease, by evacuations, by intense care or study, by intemperance in living, by drunkenness, or by fatigue. All such as are weakened by any of these debilitating causes, are more easily brought into a state of disease by cold than others. 2. When any part of the usual coverings of the body is wanting, a person is the more easily affected with cold. Thus a great many complaints are brought on, when a person accustomed to wear a flannel shirt happens to leave it off even for a very short period, or when a thinner dress is used, or when the bed-clothes are thrown off without being replaced quickly; and even from the want of a night-cap, to a person who has been accustomed to wear one, bad consequences often follow. 3. It is bad, when one part of the body is exposed to cold while the rest is kept in its usual state, or warmer.

The circumstances which enable the human body to resist the morbid effects of cold, are a certain vigour of constitution, exercise, activity of mind, and the being occupied with some exciting passion. Cordials also, as wine, spirits, or other stimulants, prevent the body from suffering from the immediate effects of cold; but it is to be noted, that they who are in the habit of drinking, are not those who are best able to resist the action of cold. The temporary stimulus of spirituous liquors is always succeeded by great weakness, and susceptibility to external impressions; and the unhappy drunkard, from the combined effects of his debility and exposure, is very frequently destroyed by disease induced by the sedative effects of cold.

CLIMATE.

Climate is considered by physicians, not with reference to geographical situation, but to the state of regions as to the warmth and steadiness of their temperature, or the dryness or moisture of their atmosphere. The interior of

continents and islands is generally mountainous, and, in consequence, cold. From the bracing qualities of the prevailing winds, the inhabitants are robust, and disposed to inflammatory diseases: invalids, or persons coming from warm climates, should therefore prepare themselves gradually for mountainous regions, by not coming abruptly into those colder parts. Excepting along the eastern parts of our continent, especially during those seasons when the east wind prevails, the air near the sea is mild and moist. In most countries, consumptive patients are therefore often sent to the sea-coast, where the air is more temperate in winter, and the heat more tolerable in summer; or to such of the South and Western portions of our continent as present a temperate and equable climate, throughout the year, and where no local sources of disease present themselves; or they are recommended to obtain those desirable circumstances by a removal to some one of the southern countries of Europe.

The advantages of a mild and equable climate, even were it in our power to point out any that is uniformly agreeable, are, however, counterbalanced by many inconveniences, as hurtful to the sick and debilitated, as the mere circumstance of a lower temperature. The being surrounded by strangers who cannot sympathize in their cares or feelings, the embarrassment arising from the use of a foreign language, and the ideas of comfort so different from what they when at home considered as desirable, combine to produce a state of irritation and a sense of unhappiness, which will often be more injurious to a patient than any thing he must necessarily suffer from the atmosphere of his own country. An artificial climate may be commanded by those in easy circumstances in rooms properly warmed; and thus they may be spared all the fatigue of travelling, and the pain of suddenly and forcibly altering their condition and habits.

The diseases most common in cold climates are, catarrh, consumption;

scourvy, rheumatism, and the various inflammatory affections: in warm climates, the plague, remittent fevers, the yellow fever, dysentery, inflammation and other disorders of the liver and of the biliary secretion, are the prevailing maladies.

QUARANTINE.

The period during which the crews of vessels, coming from a sickly port, are debarred from all intercourse with the people of the country at which she has arrived, for fear of communicating to them disease. Quarantines were originally instituted as a preventive against the introduction of the plague into various ports along the Mediterranean and other seas; and as the period during which this disease was supposed to remain latent in the constitution, was declared to be forty days, the prohibition of intercourse was continued during that period: hence the name quarantine. A closer investigation into the phenomena connected with those diseases which are endemic at certain seasons of the year in different countries, or prevail epidemically over a large portion of the globe, and into the circumstances under which they are most likely to occur, has convinced nearly all enlightened physicians of the impossibility of their being communicated from one individual to another, and of the inefficiency of quarantines in guarding against their introduction among any community. Hence, to interdict for forty days, or even for a much less period, intercourse between persons coming from a part where sickness prevails, and the inhabitants of the place at which they have arrived, is not only unnecessary, but an improper interference with personal liberty, and an impediment to commerce, from which often serious evils result. All that would appear to be necessary, under any circumstances, is to clean and ventilate thoroughly the vessel and her cargo, and to have the clothing of the crew and passengers washed and well aired. The ship and all she contains, with the exception

perhaps, during the summer season, of certain perishable articles of commerce, when in a damaged state, may then be permitted to proceed to the desired port, and discharge her cargo, without the least danger of the introduction in this manner of disease of any kind

SECTION II.

CLOTHING.

THE design of clothing is to contribute to the health and comfort of the body, by preventing the changes of the atmosphere from affecting the system, and by counteracting, on the one hand, the pernicious influence of cold and moisture; and on the other, that of too hot an atmosphere. Clothing possesses no warmth in itself, but merely prevents the heat of the body from being carried off by the air, and other surrounding bodies, faster than it can be supplied by the process of calorification. The essential requisites for clothing are, that it be soft and pliable, so as not to obstruct the free and easy motion of the joints, or occasion inconvenience by its weight or tightness; that it be adequate to protect the body from the external influence of the atmosphere, and preserve it in that degree of temperature which is most agreeable, as well as best adapted to the exercise of its different healthy functions and motions; and that it does not produce any detrimental effects, occasion any unnecessary degree of perspiration, or absorb the vapours of the atmosphere. Clothes of a light colour, have the least attraction for heat; those of a black, the greatest; the first mentioned are, therefore, most proper in hot, the last in cold weather.

But besides these general properties of commodious and comfortable clothing, it should be suited in quantity and material to the climate, the season of the year, the period of life, the constitution, and the habits and mode of living. Thus, a person who is engaged

in a sedentary employment, will always require warmer clothing than one who is actively engaged in manual, or other labour demanding considerable muscular exertion; and the latter will always require an addition of clothing, the moment he has ceased from his active labours, to what is proper whilst engaged in them. Neither do young persons, or those in the prime of life, and in robust health, require clothing in the day, or covering in the night, of so warm a nature as persons advanced in years; because the performance of their functions is more equal and vigorous, and of course, the generation of heat in the body is quicker, and of greater extent, than is the case in old age.

One of the safest rules in the regulation of dress, is to adjust it to the vicissitudes or fluctuations of the season; and this rule should be carefully attended to by the valetudinarian, the delicate, the infirm, and the old. The winter clothing should not be left off too early in the spring, nor the summer clothing worn too late in the autumn. Neither should this rule be disregarded by the young, and those in the enjoyment of perfect health; for, though strong and robust persons may, with impunity, endure many changes of temperature without any change in dress, yet they should not be too slightly clothed; and all diminution in the amount of their dress, should be made with extreme caution. Such persons, however, relying too much on the strength of their constitutions, often expose themselves imprudently; and, as the violence of their diseases is generally in proportion to the vigour of their vital powers, so are they frequently rapid in their progress and fatal in their termination. The grand rule is, so to regulate the clothing, that, when exposed to the external air, the difference of temperature experienced, shall not be such as to produce any dangerous impression, whatever may be the inclemency of the weather, when we go abroad. Hence, the necessity of a thinner clothing within doors than without, and of a greater warmth of cloth

ing after night, and during cold, damp weather, than during the day, and when the air is perfectly dry.

Persons of delicate and irritable constitutions, whose powers of life are feeble, and whose circulation is languid and irregular, are very apt to suffer severely by a very slight diminution of the temperature of their skin. This is also the case with invalids. All such persons, therefore, ought rather to exceed, than be deficient in the quantity and warmth of their clothing.

But while clothing should not be too light, or too small in amount, neither should it be too heavy, or too much in quantity. The effects are equally mischievous. By over-clothing, too much perspiration is drawn out of the body, by which the frame is greatly weakened, and coldness and numbness of the extremities are occasioned.

Dress is often injurious in consequence of its being made fashionable, in compliance with the modes and customs of the times; frequently occasioning innumerable maladies, either by compressing the muscles or viscera, stopping the access and retreat of the blood to and from the head, or from circulating through the veins, or preventing the free expansion of the chest or the unconstrained action of the limbs.

Tight clothes are invariably detrimental to the health, comfort, and symmetry of the body. By the pressure they make upon the muscles, and the impediment they offer to their free exercise, they produce in them an emaciation and debility which prevent them from supporting properly the natural and graceful position of the body, or of effecting its active movements with sufficient vigour. They prevent also, the free circulation of the blood, and cause it to accumulate in the veins of the head, lungs, or abdomen. When the pressure of the clothes, or any part of them, is around the neck, it is apt to produce headache, discoloration of the face, vertigo, and apoplexy, or other diseases of the brain; when upon the chest and waist, it prevents the full development of the lungs, impedes respi-

ration, and interferes with the proper actions of the heart, in consequence of which, the health of the whole system suffers; when around the abdomen, the stomach, liver, and intestines are affected, and indigestion is produced, or the nutrition of the whole body is rendered imperfect. The clothes, therefore, should be perfectly loose, leaving to every part the fullest liberty, and to all their natural and unconstrained motions. This is all-important at every period of life, but particularly so, during infancy and childhood.

Another practice, equally pernicious to health, is, that of going about all the morning and first part of the day, the men muffled up in great coats, and the women with furs and flannels, while, in the afternoon and evening, they sit at home, or brave the external air in a much thinner dress, which but imperfectly covers, or leaves bare, parts of the body which in the previous portion of the day were closely enveloped in the warmest clothing.

FLANNEL.

Flannel worn next the skin, in addition to the ordinary clothing, is of very great service in preserving the health of the inhabitants of all cold and temperate climates, more especially where the vicissitudes of temperature are frequent and considerable, as well as during the seasons of spring, autumn, and winter, in our own climate. It produces a moderate warmth of the surface, promotes perspiration, readily absorbs the perspired fluids, and easily parts with them again by evaporation. on account of the porous nature of its texture. These important advantages render the use of flannel at all seasons of inestimable service to the valetudinary and the aged, and all those subject to disorders of the chest, bowels, &c. Hufeland has justly remarked, that it is the very best dress for those who have begun to decline in years; for all who lead a sedentary life; for individuals subject to cough or frequent colds, gout, diarrhœa, and the like; for all nervous patients, and convalescents

from severe chronic disorders ; to persons who are too susceptible of the impressions of the atmosphere ; and lastly, in such climates and pursuits of life where exposure to sudden changes of temperature, and to wet or moisture, is unavoidable.

Flannel is also well adapted for infants and young children, especially in autumn, winter, and spring. Older children do not require it, excepting during the seasons of greatest cold, and all persons under forty, in good health, should reserve it as a resource for their declining years, during which it becomes every year more and more useful and necessary. Flannel ought not to be habitually worn at night. By far the best practice is, to throw it off in bed, unless, from great debility or age, sufficient warmth cannot be ensured by a moderate quantity of bed-clothes. The necessity of frequently changing the flannel, in order to preserve it strictly clean, need scarcely be urged, as it must be apparent to all.

Such persons as find flannel too irritating to their skin, may obviate this, by having it lined with thin muslin. The health of females would most certainly be benefited by adopting, during the winter season, at least, an under-dress of flannel. We especially recommend to them the use of flannel drawers.

COTTON.

Cotton, as an article of clothing, especially when worn in contact with the skin, is far better adapted for general use than linen. It is much better adapted for preserving the equable warmth of the surface, and guarding it from sudden vicissitudes of temperature ; but it is inferior, in these respects, to flannel. In warm weather, and in hot climates, it is, in every respect, the most comfortable and wholesome article for an inner dress. It is cooler than linen, inasmuch as it conducts more slowly the excess of external heat to our bodies, and when a sudden reduction of atmospherical temperature occurs, on the other hand, it abstracts more slowly

the heat from the body, and thus preserves the surface of a more steady and uniform temperature. For children and young persons of robust and healthy constitutions, it should constitute the material of the inner garment throughout the year.

LINEN.

Whatever may be said in favour of the comforts of linen, and the greater ease with which it is kept clean, it is by no means a substance well adapted for the dress worn next to the skin, at any season of the year, nor by any class of persons. In the winter, it is altogether insufficient to preserve the surface of a proper temperature, or to guard it against sudden changes. For children, and the labouring classes generally, as well as by all delicate persons, muslin should be preferred for summer wear, and soft flannel for winter. The chief objections to linen are, that it is too good a conductor of caloric, and hence causes the body to feel the influence of very high or low degrees of atmospheric temperature ; it imbibes readily the matter of perspiration, and when wet, communicates a disagreeable chilliness to the surface with which it is in contact.

HEAD DRESS.

Whatever covering is worn upon the head should be light, sufficiently large, and adapted in its form to the shape of the head. Too heavy or warm a covering, or one which compresses unduly the head, is productive of pain and inconvenience. In summer, the colour of the hat or bonnet should be white, or at least some shade approaching to white, in consequence of the tendency of all dark colours to absorb and transmit the rays of heat. The brim of the hat should also be sufficiently broad to protect the face and eyes from the sun. Although the nature of a head dress may appear to be a subject of very little importance in regard to health or comfort, yet every one has perhaps experienced more or less of the pain and inconvenience, occasioned by wearing a

new hat, too small in the crown, and unfitted in shape to the head, and the almost immediate relief which results from exchanging it for one of more ample dimensions; while we are assured by physicians, that disgusting, painful, and even dangerous affections of the head, are caused by the warm, thick coverings constantly worn upon the head, by the peasants in the different parts of the north of Europe.

CAPS.

The head, excepting perhaps in the first months of infancy, is sufficiently protected from cold and other external agents, by its natural covering of hair; hence every kind of artificial covering is, to say the least of it, unnecessary—even during exposure to the open air. Caps are particularly objectionable in children; by keeping the head too warm; and by the roughness of their texture when richly worked, producing an irritation of the parts with which they are in contact, they cause too much blood to be sent to the vessels of the head, and thus increase the danger of diseases of the brain, eruptions, and sores about the scalp, the forehead, and the ears, being produced; while the broad border of lace with which they are so often ostentatiously decked, interfering with the motions of the eyes produces often a permanent squint. In adults, caps should never be worn, excepting when the head has become prematurely bald, as the cooler the head is kept when possessed of its natural covering, the hair, the less danger there is of affections of the brain or of the ears and eyes. Wearing caps at night is likewise always an objectionable practice, excepting when the individual is accustomed to them during the day.

CRAVAT.

The neck might be left entirely uncovered from the period of birth without injury, probably with advantage to health. But so long as the imperious laws of custom and fashion require the use of a covering to this part of the

body in the male sex, it is important that of whatever it is composed, it be very light and loosely applied. When the neck is kept too warmly covered, it becomes peculiarly liable to the impression of slight degrees of cold; the throwing off of the cravat for a few moments, or exchanging it for one of lighter materials, will often give rise to a violent inflammation of the throat. When the cravat girts too tightly the neck, it prevents the free return of the blood from the head, causing a constant pain and sense of over-fullness.

CORSETS.

Of all the whims of fashion, no one is more absurd, or more mischievous in its effects, than that which condemns the female, under the pretence of improving the grace and beauty of her shape, to the torture of a tightly laced corset. Equally detrimental to comfort and to health, this portion of female attire cannot be too severely censured by the physician. It is productive of not the least advantage, real or imaginary, to compensate for the injury it produces, nor to excuse the folly of females in persisting in its use. The immediate effect of the corset is, by compressing firmly the chest, to prevent its free expansion in the act of breathing, and hence to impede materially the function of respiration; a less amount of air is taken into the lungs in inspiration, and as a consequence, the blood is less perfectly changed. The impediment to respiration is increased when the corset extends so low as to compress the abdomen; by the bowels being then forced upwards against the diaphragm, the latter is prevented from descending, and the dimensions of the chest are thus contracted from below. A sense of oppression and weight is always experienced about the breast when the corset is drawn very tight around the body; the breathing is short, quick, and panting; and not only is the blood prevented, in a great measure, from undergoing that change in the lungs by which it is adapted for the healthy nourishment of the various organs, but the actions

of the heart are also impeded; violent palpitation of the latter is not unfrequently produced, accompanied with a sense of vertigo and occasionally fainting. When the corset is worn constantly from early youth, the growth of the ribs is prevented, and the whole capacity of the chest is permanently contracted; and hence spitting of blood, difficulty of breathing, or even more dangerous and fatal diseases of the lungs and heart are induced. Consumption is a very common complaint, the production or aggravation of which may be traced to tight lacing. But it is not merely to the chest that the injurious effects of the corset are confined; it likewise compresses the whole of the upper portion of the abdomen, and by the yielding nature of this portion of the body, the pressure upon the organs within is even more considerable than that experienced by the heart and lungs. The liver, the stomach, and the intestines in particular, experience this pressure to a very great extent; in consequence, the free and healthy secretions of the liver are prevented from taking place, the stomach and the bowels can no longer perform their functions with proper vigour and regularity; the digestion of the food is impeded, and the bowels become costive and distended with wind. In this manner, in connexion with the injury inflicted upon the lungs, the vigour of the whole system becomes prostrated, from the use of corsets; the skin assumes a sallow hue, the countenance a haggard and wrinkled appearance, and all the functions of life are performed imperfectly. It is a fact, that nothing is better adapted to produce the premature decay of beauty, and the early appearance of old age, than the use of the corset.

There are two other effects produced by this article of dress, which would be sufficient of themselves to induce every prudent and sensible female to abandon it. The first is the injury inflicted upon the breasts, by which their proper development is prevented, and the nipple is almost entirely obliterated,

so that, when called upon to fulfil the sacred office of nurse towards her offspring, the mother finds, to her sorrow, that, from her folly, she has totally incapacitated herself from performing its duties, or experiencing its pleasures. The second effect is that produced by the pressure of the corset upon the pelvis and the womb, more especially when worn in early youth, or during the first stages of pregnancy. From this cause barrenness, miscarriages, or a stunted and deformed offspring may result, or the pains, the difficulties, and the dangers of child-birth, may be increased to a frightful degree.

Serious as are the injuries we have thus detailed, they are far from being all to which tight lacing gives rise. The firm pressure of the corset upon the muscles of the back and of the chest preventing these from performing freely their several motions, and their vessels from receiving a due supply of blood for their nourishment, cause them to become pale and diminished in bulk and in strength. Hence, when attempted to be called into action by the exercise of the arms and upper part of the body, fatigue and exhaustion are quickly induced. Upon the proper tone or strength of the muscles of the back depends principally the upright position of the back bone, and of course of the whole trunk: when, therefore these muscles are debilitated by the long continued pressure of the corset, an ungraceful curvature of the body to one or other side results, amounting often to very striking deformity. This is frequently increased by the voluntary twisting of the body, or of the shoulders, in order to escape from the constraint experienced, as well as from the uneasy sensations occasioned by the pressure of the corset upon some particular point. In a very large number of instances it will be found, that in the female who has worn a corset from her youth, the shoulders are thrown more or less out of their natural position—an ungraceful elevation of one, and an undue depression of the other, is a very common occurrence.

GARTERS.

The best garters are made of elastic webbing, and fastened round the leg with a flat buckle. Tight garters are injurious by impeding the circulation of the blood in the leg, particularly by preventing the free return of the blood from below the part on which they are fastened towards the heart. Swelling and numbness of the leg, and permanent enlargement of the superficial veins of that limb, are consequences of wearing tight garters.

SECTION III.

EXERCISE.

THE body of man is evidently formed for activity and exertion. By labour or exercise man preserves his health, augments his strength, and improves his mental faculties, besides procuring the means of his subsistence, and the conveniences of life. In regard to health, none of the various processes connected with the important functions of digestion, circulation, and nutrition could be properly or adequately performed, unless the body were stimulated for that purpose by labour or exercise. The health of all the parts, and the soundness of their structure, depend on a free supply of blood and the perpetual absorption, and perpetual renovation of the atoms of which they are composed; and exercise, by promoting at once circulation, absorption, and secretion, invigorates life without hurrying it; renovates all the parts and organs, augments their strength and vigour, and preserves them apt and fit for every office they have to perform.

By this means disease may often be prevented, and not unfrequently cured, even when it has taken a very strong hold upon the constitution. Generally speaking, a slothful and sedentary life is the source of all those diseases which are termed slow or chronic, the number of which is in our day very con-

siderable. Among these, scrofula, in digestion, bilious and liver complaints, lowness of spirits and nervous irritability, and pulmonary consumption, stand foremost; and there may be added to them jaundice, various deformities, as twisting of the shoulders and curved spine, palsy, apoplexy, &c. The neglect of exercise likewise occasions either an emaciation, or when conjoined with luxurious living, a bloating and over-fatness of the body. For these, exercise is one of the most effectual, as well as most agreeable remedies; it strengthens every organ, preserves the fluids in a healthy state, augments the appetite, facilitates the secretions, invigorates the spirits, and excites pleasing sensations throughout the whole system.

The exercise which is necessary to the maintenance of the health, vigour and the perfect and full development of the human frame, is such as will bring into action every limb and muscle; this is termed *active* exercise, and is produced by the exertions of the body in walking, running, dancing, and various species of labour.

Passive exercise, or that in which the motion is communicated to the body from without, can never be adopted as a substitute for the former, as it calls into action but imperfectly the powers dependent upon the will, and therefore leaves a large portion of the muscular system entirely inactive; at the same time, the motion itself is generally so slight, that it can contribute but little to correct the evils arising from the long continued sedentary habits and the full diet of those who most generally resort to it. Passive exercise, under certain circumstances, however, is of advantage; but whenever active exercise can be pursued, it should always receive a decided preference. The chief kinds of passive exercise are, riding, swinging, and sailing. To derive all the advantage resulting from exercise, it must be regular; several hours daily should be devoted to it. Little benefit need be expected, when, to occasional exercise of the muscles, a long period of inac-

tion succeeds. Exercise, to be beneficial, must also be in the open air, and should never be carried to the length of inducing undue fatigue. The other general rules in regard to exercise, may be laid down as follows.

1. The effect of exercise should be as general as possible, and not confined to any particular limb or part of the body. Those kinds of exercise, therefore, which give action to the greatest number of the bodily organs, as walking, running, riding on horseback, &c., are much to be preferred.

2. Little benefit is to be expected from exercise, unless it be performed in a pure air; and hence it is, that many manufacturers and artificers, who perform all their labours under cover, and are often exposed to unwholesome effluvia, from the materials they work upon, are more unhealthy than almost any other class of men.

3. The higher and drier the situation, and the more varied the air in which exercise is performed, the more beneficial will be its effects.

4. On commencing any exercise, we should always begin with the more gentle, and then proceed to the more laborious: and as sudden transitions are always wrong, the same rule should be followed when exercise is given up.

5. A good appetite after exercise, is a proof that it has not been carried to any improper excess.

6. After having taken exercise, we should not venture to expose ourselves to a current of air, or rest out of doors, in a cool or exposed place, or lie down upon the ground. A sudden change of temperature thus induced, by suppressing perspiration, may be extremely injurious.

7. It is a good rule, frequently to vary the exercise.

8. Lord Bacon correctly observes, it is requisite to long life, that the body should never abide long in one posture, but every half hour at least, should change it, saving only during sleep.

9. Muscular motion is most agreeable and healthful, when the stomach is neither too empty, nor too much dis-

tended. Active exercise is improper, therefore, immediately after a meal, or after long fasting.

10. Nothing can be more injudicious than to sit down to a substantial dinner or supper, immediately after a fatiguing walk, ride, or other violent exertion. When the body is heated, or in a state of perspiration, to devour quantities of solid food can never be wholesome. Every man, therefore, should rest for some time after exercise, before he sits down either to dinner or to supper.

11. In taking exercise, the dress should be free and easy, particularly about the neck and joints.

12. In violent exercises, a flannel waistcoat ought to be worn next the skin, to obviate the possibility of injury from a sudden chilling of the surface of the body.

13. It will always be found very refreshing, after fatiguing exercise, to wash the feet in warm water, before going to bed.

14. Serious thinking, when we are walking or taking other exercise, soon fatigues us; but if we give ourselves up to amusing thoughts, or the conversation of agreeable and intelligent friends, the good effects resulting from exercise are increased.

15. It is very desirable to have a certain object or spot by which the exertion is to be bounded; as to call at the house of a friend, to see some delightful prospect, and the like. Exercise undertaken merely as a task, or without being connected with some purpose by which the mind is agreeably occupied and excited, is seldom productive of much advantage.

WALKING.

There is no exercise so natural to us, or in every respect so conducive to health, as walking. It is the most perfect kind of exercise in which the human body can be employed; for by it every limb is put in motion, and the circulation of the blood is effectually carried on, throughout the minutest veins and arteries of the system, while both the body and the mind are amused

and enlivened. This salutary and most excellent exercise is in the power of all persons having the use of their limbs, and can be adapted, in degree and duration, to the various circumstances and wishes of each individual.

Walking is of two kinds, either on plain ground, or where there are ascents. The latter is in every respect greatly preferable, as by it the lungs are exercised, and the ascent and descent agitates the body, unless it be in a weak state, with a useful variety. Walking against a high wind is very severe exercise, and not to be recommended.

As, from various circumstances, persons residing in large towns, and engaged in sedentary occupations, cannot take all that exercise abroad, which is necessary for their health, they ought, at least as much as possible, to accustom themselves to walk about, even in their own houses, instead of sitting constantly at a desk or table, as is usually the case. This rule is peculiarly necessary to be attended to by literary men; and though such practice does not make up for the want of exercise abroad, yet it is, to a certain extent, a substitute for it.

The following rules are recommended to the attention of those who make use of this excellent species of exercise:

1. The most proper walk, for health, is in a pure and dry air, and in rather an elevated situation, avoiding marshy and damp plains.

2. In the summer season, the walk should be taken morning and evening, but by no means during the middle of the day, unless the person be guarded from the oppressive heat of the sun, under the shade of woods or trees; in winter, the best period of the day for walking is usually after breakfast, or from ten to one o'clock.

3. It is advisable, occasionally to change the direction of the walk; for the same road, constantly gone over, may excite as many disagreeable and painful sensations as the closet or the study.

4. We ought to accustom ourselves

to a very steady and regular, but not to a very quick pace; in setting out, it should be rather slower than what we afterwards indulge in.

5. An agreeable companion during a walk contributes much to serenity of mind; but unless the manner of walking of both is similar, as well as the taste and character congenial, it is better to walk alone; as either the one or the other of the two companions must be subjected to some constraint.

6. To read during a walk is an improper action, highly detrimental to the eyes, and destroys almost all the good effects that can be derived from the exercise.

DANCING.

Dancing, under proper limitations, is a wholesome exercise, and well adapted to young persons, especially in winter; violent and too long continued exertion in dancing is, however, injurious. Dancing should be performed in a large well ventilated apartment, and the dress worn by those who engage in it, should be such as not to bind or constrain any part of the body, especially the chest, upper part of the abdomen, and limbs. Dancing for the greater part of the night in overheated and crowded apartments, has not unfrequently laid the seeds of fatal disease, by which the young and gay have been hurried in a few weeks to the grave. The injury done to the constitution by over exercise at the midnight ball is most generally augmented by improper food and drinks, and by subsequent exposure to the night air, when the body is unduly excited and fatigued by the exercise, and other stimulating agents, to which it has been subjected.

SWIMMING.

For the young, the robust, and healthy, swimming is an excellent recreation. It combines all the advantages to be derived from bathing, with active exercise of nearly every part of the body. It possesses another important recommendation, which should cause it to be taught to, and practised

by, every one; its presenting, namely, a means of safety in cases of accidental submersion to the individual himself, who has acquired the art of swimming, while it may enable him to save the lives of others under similar circumstances, who are unacquainted with it. Swimming, however, as well from the powerful and constant exertion it demands, and the coldness of the water in which the body is immersed, is improper for the debilitated, or those exhausted at the time from fatigue, profuse perspiration, or any other cause. Though adapted to a larger class of persons than the cold bath, all the remarks made in reference to the latter, are applicable to swimming, nor should those which refer to the state of the body at the time of swimming ever be neglected. See COLD BATH.

GESTATION.

Gestation is that species of exercise which is communicated to the body by foreign means, with but little or only partial exertion of the muscles. The principal modes of gestation are, riding in a carriage or on horseback, being carried in a litter, sailing, or swinging, either in a suspended seat or on an elastic board. Gestation does not afford sufficient exercise for the demands of the system during a state of health; it is, nevertheless, occasionally proper, and in certain diseases, or for persons in a state of considerable debility, it is the only species of exercise that can with propriety be resorted to, and under such circumstances its effects are very beneficial.

RIDING.

Next to walking, riding on horseback is the most salutary and useful species of exercise, especially for invalids. Riding may be varied according to the strength of each individual and the state of his health, by walking, pacing, trotting, or cantering.

Persons labouring under ill health, whether occasioned by too long continued sedentary habits, or from defective digestion, as well as those predis-

posed to consumption, will experience from the exercise of riding the most decided advantage.

In riding to preserve health, eight or ten miles a day are sufficient to answer all the purposes we would wish for; but, in riding to restore health, these little excursions will avail nothing. To attain the latter object, the mind, as well as the body, must be roused from its languor. In taking an airing, as it is called, we ride over the same ground, for the most part, every day. We see no new objects to divert us; and the very consideration of riding for health sinks our spirits so much, that we receive more harm than good from it. Upon this account, long journeys are recommended to such people, in order, by the variety or novelty of the scenes through which the invalid passes, to awaken or divert the mind. Many have, by these means, been surprised into health.

Riding in a carriage has but few advantages; it communicates but little motion to the body, and when the blinds are closed, the persons using it are excluded from the benefit of fresh air, upon the free exposure to which the success of all kinds of exercise in a great measure depends. It should be used only by such persons as are unable to walk or to ride on horseback, and with the blinds open. It is to be lamented, that those people use this mode of exercise most who stand in the greatest need of a more violent species.

Riding in a gig or chair, if the individual himself drives, is a far better exercise than that of a carriage. The less gentle the motion of the vehicle in which we ride, and the rougher the road, the greater is the amount of exercise communicated to the body. Riding, however, excepting on horseback, if long continued, causes a feeling of soreness and stiffness in the limbs; and in the aged and debilitated, a swelling and numbness of the feet and legs.

SAILING.

Sailing upon the water is generally

described as being the most advantageous of the passive kinds of exercise. Much, however, of what has been said in regard to it, whether as a means of promoting health or removing disease, is extremely vague and unsatisfactory. The influence of an hour's sailing upon the system, in a pleasure boat, is very different from that which would result from an East India voyage, or a cruise with an Anson or a Cook around the world. The effects will also differ, according as the individual is placed in the situation of a mere passenger on board the vessel, or is obliged to partake of the homely fare, the broken rest, and the fatiguing labours of the sailor.

Rowing a boat, to those who are not daily accustomed to the task, may be ranked among the most active species of exercise. To the robust and those in perfect health, this exercise, when not carried to the extent of producing very considerable fatigue, is one admirably calculated to impart strength to the arms, and breadth and development to the chest. When, however, it is too frequently repeated, to the neglect of other species of exercise, it is very apt to produce a partial and ungraceful expansion of the frame.

The management of a sail-boat is a more attractive, and far more gentle exercise than rowing. As a means of preserving health, it is, in every respect, however, inferior to either walking or riding—but affording to many an agreeable and useful variety in the means of exercise, it may be occasionally resorted to with no little advantage.

A trip in one of our steamboats has no claims to the title of exercise. The good effects which the infirm or convalescent derive from it, are to be attributed solely to the agreeable occupation of their minds by change of scene, and to the pure atmosphere they are enabled to breathe. During the summer months, short daily trips in a steamboat afford, however, an admirable means of counteracting the deleterious influence of the heated air of the city upon infants and young children—it is,

indeed, almost the only manner, when a removal to the country cannot be effected, in which the occurrence of the dreaded summer complaint can be prevented, or, when present, its violence mitigated.

FRICTION.

Friction of the surface, in conjunction with regular bathing, forms a very important means of preserving and improving the health of the body. It removes thoroughly from the surface every species of impurity which may accidentally adhere to it—promotes the freedom of the blood's circulation in the minute vessels of the skin, and ensures the regular and perfect performance of the important functions of that organ. It promotes the growth and development of the muscles—invigorates the digestive organs, and imparts a comfortable glow and an increased energy to the whole system, by which it is rendered less liable, during cold and changeable weather, to become affected with disease. The ancients, it is said, had the art of rendering fat people lean, and those that were emaciated fleshy, partly by means of a proper course of active exercise generally, but more especially by the diligent use of frictions of the skin.

Though useful to all, frictions are peculiarly adapted to increase the health and vigour of persons of debilitated habits, who lead a sedentary life, are subject to dyspepsia, gout, and rheumatism, or who are particularly liable to be affected by cold or slight variations of atmospheric temperature. Their whole bodies, more particularly their limbs and the anterior part of the trunk, should be rubbed for half an hour at least, morning and evening, with a flesh-brush or coarse towel, until the surface begins to grow red, and assumes an agreeable glow. In many cases, premising the use of the warm bath, or sponging the body with cool or tepid water, will be found to increase the good effects to be derived from the practice. Frictions are highly useful in the case of delicate females; and in children

they promote their growth and activity, and prevent many of the diseases to which they are liable.

The best time for using friction, is in the morning and evening, but especially the former, when the stomach is not distended with food. They who are subject to wakefulness and disturbed sleep, will find, in addition to a properly regulated diet and active exercise in the open air, that sponging the body with tepid water, followed by brisk frictions of the surface, will more effectually induce quiet repose than any other means.

GYMNASTICS.

By gymnastics is meant a series of regular exercises, calculated to call all the muscles into action, and properly graduated, according to the age, strength, health, and other circumstances of different individuals. Whether gymnastics be considered as a means of active exercise, well adapted to the condition and wants of the inhabitants of large cities—as making a part of the physical education of students and of youth generally—or as a remedy in certain diseased states of the human body, their importance is confessedly great, and the advantages to be derived from them, under either point of view, has been strangely overlooked or underrated, in this country in particular. Every large city should possess its public gymnasium, open to all classes of its citizens. The languor and lassitude induced in the sedentary artisan, in the clerk and in the shopkeeper, by their daily occupations, will be effectually dissipated by an hour devoted to the varied exercises of the gymnasium; while the mechanic, some of whose muscles are called by his labours into constant and active exertion, while others are allowed to remain totally inactive, will find at the gymnasium the means of restoring that harmony in the strength and development of the different parts of his body, by calling all into equal action, which his ordinary pursuits tend so powerfully to destroy. We know of nothing which would so effectually prevent the occurrence of

diseases of the stomach, or improve the health of mechanics generally.

CALISTHENICS.

By calisthenics is meant a regular and methodical series of bodily exercises, adapted to call into equal and sufficient action the various muscles of females, in order to promote the general health and development of their systems, to prevent deformity, and to remove that languor and inertness of various functions, produced by the confinement and sedentary habits to which the female sex is so generally and improperly subjected. Of the importance and beneficial effects of calisthenic exercises in civil life, there can not be a doubt. By the ridiculous prejudices of fashionable society, girls are debarred from participating in the active sports of childhood, and during the period of their education, as well as in after life, for the greater part of the day, they are forced to breathe a confined atmosphere, and to remain in a state of comparative inaction. The effects of this mode of life upon the health can only be counteracted by exercise in the open air; and in the present state of society in this country, calisthenics present almost alone the plan of exercises adapted for general use.

SECTION IV.

APPETITE.

APPETITE is that instinctive sensation which warns man of the necessity of partaking of food for the support of his system. The indulgence of the appetite is attended with pleasure; neglecting its calls is productive of painful feelings, more or less intense.

There are three kinds of appetite: 1st. The *natural* or *healthy* appetite, which is stimulated and satisfied with the most simple food, as certainly as with the most palatable: 2d. The *artificial* appetite, or that excited by condiments, liqueurs, pickles, high-seasoned dishes, variety of food, wine, &c.,

and which remains only so long as the operation of these stimulants continues: 3d. The appetite of *habit*, or that by which persons enjoying no inconsiderable health, accustom themselves to take food at stated hours, but frequently without relishing it. The *true* and *healthy* appetite alone can ascertain the quantity of aliment proper for the individual. If we were seldom to trespass the due limits of temperance, our natural appetite would be able accurately to determine how much food we may consume with satisfaction and benefit; but the usual physical education of children is now so loose and badly conducted, and the temptations to eat of improper food, and at improper times, are rendered so powerful by the refinements of cookery and the artificial habits of society, that we rarely meet with a natural and healthy appetite at any period of life. If, after a meal, we feel ourselves refreshed, and as cheerful as before it, or more so, we may be assured that we have taken no more than a proper quantity of food; for, if the right measure be exceeded, torpor, heaviness, and relaxation, are the necessary consequences; our faculty of digestion will be impaired, and a variety of complaints gradually induced. The celebrated *Cornaro* used to speak with delight of the cheerfulness and serenity he felt after partaking of the small portion of plain food which he was accustomed to enjoy. Before he determined on adopting a spare diet, he was much afflicted with lowness of spirits, heaviness, and debility, and severe bowel complaints were the torment of his life; but his careful and abstemious diet perfectly cured him of these and other evils. There can be no doubt, that the majority of persons in this country, in easy circumstances, eat and drink considerably more than is either necessary or beneficial. It is a remarkable fact, that almost all those who have lived to a great age, have uniformly observed a very temperate diet; and in numerous instances of longevity, it has been scanty and coarse.

Hunger.—That uneasy sensation

which is occasioned by too long abstinence from food, when the stomach and system generally are in a state of health. The effects resulting from excessive hunger, are noticed under the head of abstinence. As a general rule, the sensation of hunger should as seldom as possible be allowed to occur; for, although the old proverb, “hunger is the best sauce for our food,” is true, if the term hunger be used merely to signify keenness of appetite; yet, the moment it becomes a painful sensation, the stomach and other organs suffer, and the energies of the system are, to a certain extent, prostrated. In various diseases of the stomach, hunger is a morbid phenomenon which cannot be appeased by any quantity of food; and in children, a constant craving of food, and that of the richest and most substantial kind, which is often mistaken by parents for hunger, is merely the effect of improper indulgence of the appetite, both in regard to the quantity and quality of their food, and is to be removed only by a proper regulation of the diet; by its being rendered more simple, given at stated periods, and in greater moderation.

ABSTINENCE.

By abstinence, is meant either the refraining entirely from food, or for a certain period, or from some particular species of food habitually. In a more limited sense, however, abstinence implies extreme moderation and temperance; the sustaining life upon the smallest possible amount of food, and that of the simplest kind. Entire abstinence from food, can not be endured for any great length of time, by persons in health, without its producing the most distressing sensations; and if food be still withheld, or the individual is enabled to control the desire to partake of it, a diseased condition of the body is induced, terminating quickly in death. The effects of prolonged abstinence are, general and excessive emaciation, a diminished size, and colourless state of the muscles; extreme debility; the blood becomes deficient in

quantity, and altered in its qualities; and the other fluids undergo a similar change. The functions of the brain often become derailed, and death is preceded by delirium. The length of time an individual may survive under entire abstinence from food, varies according to his age, constitution, habits, and a variety of other circumstances. Many instances of long-continued abstinence being endured with perfect impunity, are recorded; but, in general, it will be found that these have occurred in persons labouring under disease, who were in a state, resembling somewhat that of torpid animals, or that while they abstained from solid food, they drank various fluids, more or less nutritive. Abstinence from food, for a limited period, is often, during health, of very great importance; it is one of the most powerful means of obviating the effects of any accidental excess, of warding off an impending attack of disease, and of removing those disorders of the stomach, incident upon the introduction into it of aliment of an improper kind. Occasional abstinence from food, by omitting a meal or two, or substituting for an animal diet, a bowl of gruel, or a slice of bread and tea, restores the force of the digestive organs, by diminishing their action, and giving them rest, and time to resume their healthful energies; while, at the same time, when the system is rapidly verging into disease, or the vessels are overloaded with blood, it removes from the first a stimulus which might increase its deviation from health, and upon the second, it acts as an evacuant, by allowing the secretions time to remove from them their excessive amount of fluids. The studious, as well as they who lead sedentary lives, are especially benefited by occasional abstinence; as such persons, from the want of sufficient exercise, are generally the severest sufferers from diseases of repletion, and from a disordered state of the digestive organs. Diseases of the most violent character, may often be prevented by the observance of an abstemious diet, during the

period of their prevalence; and they have often been cut short by rigid abstinence from food, from the moment the symptoms are experienced which threaten their attack. Abstinence, says Dr. Miller, is one of the most convenient means of curing disease. No confinement is necessary, no interference with the ordinary occupations of life. If the apprehensions which give rise to it prove groundless, no trouble nor injury is sustained; but the system, freed from unnecessary excitement, feels a lucid interval, not often experienced by the votaries of luxury, and afterwards returns to a more substantial diet with redoubled satisfaction. If the disease, about to attack, be of a moderate kind, abstinence alone will often be sufficient to strangle it in the birth; if more violent, and our easy precaution should prove insufficient, some advantage, and of no trifling amount, will at least have been gained. The stomach will certainly be in a better condition for the reception of other remedies.

SURFEIT.

By a surfeit, is meant an overloading of the stomach, with too great a quantity, or mixture of food, or by indulging in food of a very rich or indigestible quality. The effects of this, if it be not got rid of at once by the vomiting which sometimes spontaneously occurs, are nausea, acid or acrid eructations, pain of the head, flatulency, disinclination to food, a sense of chilliness, alternating with flushes of heat; pains in the stomach and bowels, and disturbed sleep. These symptoms often continue for many days, and then produce a looseness of the bowels, or even profuse and obstinate diarrhoea. The prudent will always carefully avoid a surfeit; it being one of the most certain means of destroying the tone, and inducing disease of the stomach. When intemperance of this kind has been committed, a gentle emetic should be given, followed by a dose of calcined magnesia; and, for some time, the diet should be of the

lightest kind, as thin gruel or panado, toast and water, or crackers with milk.

FOOD.

A sufficient supply of food, of a wholesome and nourishing quality, is essential for the support of the system in health, and to enable it to undergo that amount of labour to which each individual is subjected. Excess of food, even of the lightest and most wholesome kind, interrupts digestion, oppresses and irritates the stomach, produces a feverish heat of the surface, loads the vessels with an excess of blood, and when sufficient exercise is not taken, renders the body unwieldy, by the accumulation of fat beneath the skin, and around the abdominal and thoracic organs. The action of the heart becomes sluggish; muscular exertion is performed with difficulty; the mind is rendered dull and torpid, and the body is predisposed to various acute and rapidly fatal diseases, from very slight causes. Equally injurious is a deficiency of food. The energies of the body and of the mind suffer, and disease is as certainly induced by inanition as by repletion. The just medium must be left to the instinct and reason of each individual, in whom the quantity required will vary considerably, according to his age, constitution, occupation, and degree of health. It may be safely inferred, however, that a person in health has not transgressed the bounds of moderation, if, on rising from his meals, he feels light and cheerful, with a stomach unoppressed, and a capability of applying himself at once to study, or to labour; while, on the other hand, if he experience giddiness, heaviness, lassitude, uneasiness, distension of the stomach, or an inclination to sleep, he has exceeded the bounds of prudence, and should be on his guard in future. Partaking of a great variety of food at one meal, is injurious; it causes more to be eaten than is proper, impedes the digestive powers of the stomach, and inflicts serious injury on the latter organ, and, through it, on the system generally. With respect to the

solid or fluid nature of our food, we may remark, that a certain degree of solidity assists its digestibility, and hence, soups, jellies, gravies, and the like, are more readily digested, when bread or other solid substance is added to them, than when they are eaten alone. A sufficient bulk of food in the stomach, to give to it a gentle stimulus and distension, is absolutely necessary for healthy digestion: it is on this account, that all such articles as contain much nutriment in a very small space, are unwholesome. In regard to the concentration of aliment, very erroneous and injurious opinions generally prevail. It is supposed, by most persons, that by extracting and insulating what they conceive to be the nutritious principle or principles of any given alimentary substance, they are able, with greater certainty and effect, to nourish the body of the sick and delicate; thus, we continually hear of strong beef-tea, pure arrow-root jelly, and the like, being prepared with great care for such persons. But many of our readers will be much surprised to hear, that dogs and other carnivorous animals, fed on the strongest beef-tea, or pure jelly alone, rapidly emaciate, and die within a short period, and that precisely the same consequences would ensue, were the strongest man confined to the same food. A certain bulk, therefore, of food taken into the stomach, is essential to nutrition; and all attempts to combine too much nutriment in too small a mass, materially impairs the wholesomeness of our food.

Aliments.—Whatever is capable of being used as food, and of supplying the waste of the animal body, is called aliment. The great variety of nutritive substances may be classed and arranged in various ways, as animal or vegetable; fish, fowl, or flesh; solid or liquid, &c.; or they may be classed according to the particular principles, as they are called by chemists, on which the nutritive qualities depend. Some of these principles are fibrin, albumen, gelatine, oil and fat, gluten, fecula or starch, mucilage, sugar, acids,

&c. On this plan, Dr. Paris classes aliments in the following way: Class I. Fibrinous aliments. Comprehending the flesh and blood of various animals, especially such as have arrived at puberty, venison, beef, mutton, hare. II. Albuminous aliments. Eggs: coagulable animal matter. III. Gelatinous aliments. The flesh of young animals, veal, chickens, calf's feet, certain fishes. IV. Fatty and oily aliments. Animal fats, oils, and butter; cocoa, &c., ducks, pork, geese, eels, &c. V. Caseous aliments. The different kinds of milk, cheese, &c. VI. Farinaceous aliments. Wheat, barley, oats, rice, rye, potato, sago, arrow-root, &c. VII. Mucilaginous aliments. Carrots, turnips, asparagus, cabbage, &c. VIII. Sweet aliments. The different kinds of sugar, figs, dates, &c. carrots. IX. Acidulous aliments. Oranges, apples, and other acescent fruits.

The numerous substances classed above, vary much both in their nutritive and digestible properties. When we talk of a substance being nutritive, we mean that it has the power to supply more or less nourishment to the body, without saying whether the stomach and the other assimilating organs find much or little difficulty in conducting the process; and when we say that a substance is digestible, we mean that the stomach and its coadjutors separate with ease the nutritive portion from it. Thus a substance may be very nutritive, but not very digestible; and the reverse may also be true. Fat oily aliment is very nutritive, but of difficult digestion. This is what people mean when they say such an article of diet is *heavy*; though oil is specifically light, and often floats on the other contents of the stomach. The digestibility of food, considered without reference to the stomach, depends on a variety of circumstances, particularly the state of the food, with regard to texture and consistence; and this texture in animal food depends on the time that has elapsed since the animal was killed, on its age, sex, feeding, and mode of killing; and above all, on the operations

of cookery. In a matter which varies so much in different individuals, it is not easy to lay down any general maxims with regard to the digestibility of different kinds of food; but it is found pretty generally to be the case, that tender mutton is the most digestible food. Beef is not quite so easily digested; but it is equally nutritious. Soups, oils, and jellies are digested with some difficulty, both on account of their tenacity and because they are not so easily acted upon by the mechanical and solvent powers of the stomach.

VEGETABLE FOOD.

That man is capable of sustaining the health, vigour and strength of his system upon a diet purely vegetable, is established by so many proofs, as to place the fact beyond the possibility of doubt. The Hindoo lives almost exclusively upon rice and water. A great proportion of the Irish peasantry subsist on potatoes, with the occasional addition of bread and milk; and the labouring classes, in many districts of Scotland and the north of England, are nourished upon little else than oat-meal and potatoes; while in various other countries of Europe, the poor are restricted almost exclusively to a vegetable diet, even less nourishing than either of these. When the food, just referred to, is in sufficient quantity, and of a good quality, more robust, active and vigorous frames, and a greater amount of general health, than are presented by the individuals who make use of it, can scarcely be met with in the inhabitants of any other country, or among any other classes of society, whatever may be the nature of their diet. Although vegetable aliment requires a longer time to digest in the stomach than that from the animal kingdom, and notwithstanding the latter presents a larger amount of nutritive matter in a smaller bulk than the former; yet it is indisputable that the human system can derive from vegetable food as great a quantity of suitable nourishment as from animal, while the former produces much less excitement and heat,

and is far less liable to produce overfullness of the blood-vessels, or to predispose the organs to disease. As a general rule, it will be found that they who make use of a diet, consisting *chiefly* of vegetable substances, properly cooked, more especially the farinaceous seeds and roots, have a manifest advantage in looks, strength and spirits, over those who partake largely of animal food; they are remarkable for the firm, healthy plumpness of their muscles, and the transparency of their skins. This statement, though at variance with popular opinion, is amply supported by experience. The diet of children, and young persons generally, should consist almost exclusively of farinaceous aliment and milk. In summer, and in warm climates, a greater proportion of vegetable food is required than in winter and in cold climates. They who, with a sufficiency of daily exercise in the open air, to preserve the activity of the digestive organs, nevertheless spend ordinarily a life of ease and comparative inaction, will find their health and comfort better promoted by a diet principally vegetable, than by one in which animal food abounds. Towards the decline of life, also, the amount of animal food should be gradually diminished, and that of wholesome vegetable aliment increased.

ANIMAL FOOD.

It is evident as well from the structure of the digestive organs in man, as from experience, that he is destined to live upon both animal and vegetable food, and that a proper combination of both constitutes the aliment which, generally speaking, is best adapted to his taste, and the one by which the health and vigour of his system is under most circumstances best sustained. It is nevertheless true, that whole tribes of people subsist almost entirely upon the flesh of animals, without, apparently, its producing any striking influence upon their bodily strength, or inducing disease; while, on the other hand, we know that by a diet almost exclusively vegetable, the growth and development

of the body is in no manner curtailed, and its muscular strength and freedom from disease, is as fully maintained as it can be by any other species of food.

The nourishment communicated by both animal and vegetable food is much the same; but the animal product is the most easily separated by the digestive organs, and is afforded in the greatest amount. The blood of the individual who partakes largely of animal food, is hence richer, more elaborated and stimulating, and produces a much greater excitement of the different organs of the system, than the blood of those fed principally upon a vegetable aliment. The first gives, likewise, a greater tendency to inflammatory affections than the latter. For those who are accustomed to active and laborious employments, a greater amount of animal food will be proper than for the sedentary and inactive. Infants require less animal food than children, children than adults, and women than men. In summer, the quantity of animal food should always be diminished, whatever may be the habits or occupations of the individual. In winter, and in the more northern climates, a more permanent and stimulating nourishment is required than under opposite circumstances: this is best afforded by animal food; and hence the propriety of the latter being increased to a certain extent during the cold season, and in cold climates. The different kinds of animal food differ in the degree of nourishment they afford, as well as in the ease with which they are digested. Thus, the flesh of full-grown animals is much more digestible and nutritious than that of their young; and as it respects the larger animals, this rule is without exception. Beef and mutton, for example, are more easily digested, and more wholesome than veal and lamb. The sex of animals too influences the nature of the food; the flesh of the female being more delicate than that of the male. The mode of killing, too, gives a tenderness to the flesh. Hunted animals are, hence, tenderer than those that are killed on the spot.

The flesh of animals which are allowed to range freely in the open air, is more wholesome and nutritious than of such as are stall-fed. In general, the flesh which is dark coloured, and which contains a large proportion of fibrin, is more digestible and nutritious than the white flesh of animals. Thus, the white flesh of domestic fowls is not so readily dissolved in the stomach as that of the different kinds of game. By cooking, animal food is changed in its texture, being generally rendered softer, and easier of digestion; but by certain modes of cooking, a reverse effect is produced, the food being rendered indigestible, unnutritious and unwholesome.

VARIETIES OF ANIMAL FOOD.

Gelatine, or animal jelly, is highly nutritious; but in its separate or concentrated state, it is difficult of digestion; hence, the impropriety of the dyspeptic, and persons of weak stomachs generally, being fed upon strong soups, calves' feet jelly, and similar articles of food.

Gelatine of Bones.—Bones have been found, by careful analysis, to contain in every 100 parts, 60 of an earthy matter, and 30 of a nutritive jelly, a portion of the residue being pure fat. By a process lately invented by Mr. Darcet, of Paris, the whole of the nutritive part of bones can be extracted from the other substances contained in them, and with the addition of proper seasoning, and such vegetables as ordinarily enter into the composition of good soups, constitutes a highly palatable and nutritious food, which, from its cheapness, is well adapted for the use of the poor; and is now extensively employed in several of the public charitable institutions of France. In preparing the jelly from bones, it is only the spongy extremities, and the soft cellular portions of them, that are made use of. The hard compact bones are still, therefore, reserved for the various purposes to which they are now so extensively applied in the arts. Not only does the jelly procured from bones

deserve attention by its affording a palatable and economical soup for the supply of the poor; but from the facility with which it can be converted into dry cakes, and in that form kept without undergoing the least change, for years. The crews of ships, destined for long voyages, can, by this means, be constantly supplied with wholesome fresh food; all that is required to convert the cakes of dry jelly into soup, being to dissolve them in boiling water, and to add the proper seasoning, with biscuits, rice, potatoes, or any other vegetable aliment that can be obtained. Biscuits are also made with the jelly, combined with flour. These biscuits have been introduced as an article of diet on board the French national vessels, with decided advantage to the health and comfort of their crews.

Calves' feet jelly.—A jelly obtained by boiling calves' feet in water for a length of time. The decoction being properly strained and clarified, is allowed to cool, in the form of a pure jelly; or, previously to its cooling, sugar, wine, spices, &c. are added to it. Plain calf's foot jelly, or that which is sweetened, is grateful to the palate, very nutritious, and not very difficult of digestion; it is hence, sometimes, a useful article of diet for convalescents; it may be taken cold, or dissolved in warm water, according to circumstances. It should, however, only be given occasionally, or in moderation; for jelly, like all other concentrated aliment, is not so readily converted into chyle, as many other articles which contain a less amount of nutriment. Dyspeptics, especially, will find it to disagree, very generally, with their stomachs. The addition of wine and spices to the jelly, renders it an improper article of diet under most circumstances.

Albumen.—The purest example of albumen is that presented by the white of the egg; it nevertheless enters largely into the composition of many of the animal fluids and solids. As an article of food, it is at once readily as-

simulated in the stomach, it being taken up by the absorbent vessels, without its being required to undergo digestion, while at the same time it is highly nutritious. It was once supposed, that when coagulated by heat its digestibility was, in a great measure, destroyed; this, however, has been proved by late experiments not to be true; the white of a boiled egg being converted into chyme without difficulty. The injurious effects resulting from the eating of hard boiled eggs, are occasioned in a great measure by the effects of the heat upon the oily matter of the yolk.

Milk.—Milk is confessedly one of the most valuable presents which a bountiful providence has bestowed upon man. To the healthy and active, it affords far more strength and support than is generally supposed. In many instances, either alone, or in combination with the farinaceous seeds or roots, it has formed the sole sustenance of life—maintaining fully the health and robustness of the system, without any of the disadvantages which result from an excess of animal food on the one hand, or the diminished strength and vigour which have been supposed to be the effect of a purely vegetable diet, on the other.

Incalculable would be the benefits which would result to the working and labouring classes of our country, were they to substitute this wholesome and nourishing food in their families, for the expensive and unnutritious slops, which, under the name of tea or coffee, constitute the chief of their morning and evening meals; or, at least, were they, in order to support their system under labour, and to defend it from the effects of cold, heat, or fatigue, to substitute a tumbler of milk for the pernicious dram of ardent spirits, or the too often deleterious preparations presented to them in the form of beer, porter, or ale.

For children, milk with bread, or a simple preparation of milk with rice, or with eggs and sugar, is perhaps the best and most wholesome food that can be devised: it should, at least, form the

principal part of their nourishment for the first twelve or fifteen years of their life. In place of being weakly or stunted in their growth upon such food, they will be found stronger, stouter, more healthy, and of a more rosy and pleasing complexion than children who are fed upon meat, and pampered with the delicacies of a well-filled table.

Milk, to be perfectly wholesome, should be drawn from sound, young animals, supplied with a sufficiency of their natural food, and allowed free exercise in the open air. The best mode of using it, is, undoubtedly, in its raw state, and when it has stood about two hours after being drawn. It may be eaten with bread or mush. Milk enters, also, into the composition of various dishes, which it is not necessary here to enumerate, they being well known to every skilful housewife.

Largely diluted with water, milk furnishes also a very palatable and wholesome drink during warm weather.

Cream.—That portion of the milk which rises to the surface, when it has stood for some hours, and may be skimmed off and separated from it. It has many of the properties of oil; when allowed to stand for some days, it becomes thicker, the flavour of cream is lost, and is succeeded by that of cheese. When cream is agitated by churning, it separates into butter, and a fluid like skimmed milk. With some stomachs cream disagrees in the same manner as a small quantity of oil or butter would do; with many dyspeptics, pure cream, however, agrees better than milk. When taken in moderate quantity, as an accompaniment to tea, coffee, fruits, &c., it seldom gives inconvenience to any one.

Eggs.—Eggs contain a great deal of nourishment in a small bulk; and when perfectly fresh, and soft boiled, they constitute a species of food of very easy digestion. When hard boiled, and especially when fried, they are indigestible and stimulating, and produce very considerable disturbance to weak stomachs.

Cheese.—All kinds of cheese are of

difficult digestion; and as an article of food, are suited only to the healthy, strong and laborious. Such persons would, in fact, appear to require an aliment which, while sufficiently nourishing, is not rapidly digested. We have now reference to cheese in its recent state, or which has been preserved in such a manner as to undergo but little change. With age, cheese, in general, acquires new properties, becoming more stimulating, and less nutritious. This arises from a spontaneous decomposition which takes place in it, by which a certain amount of ammonia, and of other salts, is developed. It is this which gives to it its peculiar sharpness, and, in some measure, its taste and smell. In this state, cheese can with safety be made use of, only in very small quantities, as a condiment along with other food. By persons of delicate stomach, it should be eaten with great caution. The idea entertained by many, that a portion of old cheese taken with the dessert aids digestion, is perfectly absurd. When cheese has advanced very near to a state of putrefaction, though eaten by certain epicures, and by some of the nations of the north of Europe, it is at once disgusting to the senses, and injurious to the stomach. Certain changes which cheese occasionally undergoes, impart to it poisonous properties. Roasted, or cooked cheese, is very indigestible, and liable to occasion painful sensations in the stomach, headache, acrid eructations, feverish heat of the skin, and disturbed sleep. A few persons have a decided aversion to cheese, so that it can neither be seen, smelt or tasted by them, without exciting nausea, or vomiting. Cheese is an article of diet not well suited to children; it is very apt, in their excitable systems, to give rise to unpleasant symptoms of longer or shorter duration. When eaten by adults, it should always be combined with a large portion of bread.

Butter.—An unctuous substance obtained from the milk of animals, and most plentifully from that of the cow.

It is got by long continued agitation, which operation is called churning. It is universally used as an article of diet; and when perfectly fresh and thinly spread upon bread, there are few stomachs with which it disagrees. Butter is used as a sauce to many articles of food, and is frequently added to flour to be baked into cakes and pastry, and it is in both these forms injurious, for though it does not produce effects that are immediately apparent, it lays the foundation of stomach complaints of the greatest obstinacy. Its use in this form is also very apt to give rise to diseases of the skin, very difficult to cure. Persons labouring under stomach complaints should not use much butter in any form. It is also very unwholesome when heated. It is a bad part of the management of children, to pamper their palates by frequently indulging them with butter; as it is apt to give rise to a gross and unhealthy habit of body, characterized by the frequent appearance of boils and other sores, discharges from behind the ears, &c., or eruptions on the head, and other parts of the skin. Its immoderate use also occasions too great fullness of the system. Butter, when rancid, is peculiarly unwholesome and disagreeable.

Fat affords a rich nutriment, requiring, however, strong powers of digestion, and hence, adapted only to the healthy and laborious; it is more wholesome, however, when eaten with a proper quantity of lean, or with a considerable addition of farinaceous aliment in the form of potatoes, bread, rice, &c. To persons with weak stomachs, fat is too heavy and stimulating, and is apt with them to turn rancid, and to produce uneasiness and disease of the digestive organs. When partly burned, as in roasting, or frying, fat is decidedly unwholesome. Children and invalids, especially, should be extremely cautious in the use of fat meats.

BEEF.

Beef affords a strong, easily digested, and wholesome nourishment: it should be tender, fat, and well

mixed; and taken from a bullock of middle age.

Beef is more generally acceptable to the taste, than most other species of animal food; it is good at all seasons, and we continue longer to relish it without disgust than any other kind of meat. The particular flavour and delicacy of beef, depend much upon the feed on which the animal is reared. Beef furnishes proper food for the strong, and laborious; when eaten to excess however it predisposes to inflammation, and an over-fullness of habit. Of its different parts, the *fat* is less easily digested than the lean; the *tongue* and also the *tripe*, being of a more dense texture than the other parts, are more indigestible, and therefore an unfit aliment for weak stomachs. The best mode of preparing beef, is by roasting, or boiling. Beef-steaks appear to be the form, however, in which its nutritious qualities are best retained.

The excessive body of fat which is accumulated upon what is called *prize beef*, adds nothing to its goodness, but on the contrary, renders it less wholesome and nutritious.

Beef-tea is an important restorative for persons recovering from sickness, and in many cases of actual sickness. The following is the best mode of preparing it: cut a pound of lean beef into thin slices, put it into a quart and a half of cold water, set it over a gentle fire, so that the water shall become gradually warmed. When a scum arises, skim it off. Let it simmer gently for about an hour, then strain it through a fine sieve, or napkin. After it has stood about ten minutes to settle, pour off the clear liquor.

MUTTON.

Mutton is a highly nutritious and wholesome meat. It appears to be the most digestible of all animal food, and is perhaps more universally used than any other. The flesh of the male animal, however, has in general so strong and disagreeable a taste, and is, besides, so exceedingly coarse, and difficult of digestion, that it is only adapted

to persons of strong digestive powers. *Ewe-mutton*, if it is more than between three and four years old, is likewise tough and coarse. *Wether-mutton*, or the flesh of the castrated animal, is most esteemed, and is by far the sweetest and most digestible.

Lamb being less heating, and less dense than mutton, is better suited to persons convalescent from acute diseases; but by the majority of patients labouring under indigestion, or any other severe affection of the stomach, it is not found so digestible or proper a diet as wether-mutton. It is, however, to persons in health, a light and wholesome food, especially when the lamb is not killed too young. A lamb that has been allowed to suck five or six months, is fatter and more muscular, and in every respect better, than one which has been killed when two months old, and before it has had time to attain its proper consistency. *House-lamb* is a dish esteemed chiefly because it is unseasonable. Like all animals raised in an unnatural manner, its flesh is depraved and unwholesome.

VENISON.

The flesh of the deer is reckoned a great delicacy; it is nutritious, savoury and easy of digestion. The animal being commonly killed in the chase, its flesh, like most species of game, is more tender than that of tame beasts slaughtered in the usual mode.

VEAL.

The flesh of the calf, like that of all young animals, abounds in gelatinous matter; it is far less easy of digestion than the flesh of the ox, or beef. For persons in health, the most proper mode of cooking veal is by roasting or baking.

Veal broth produces a laxative effect upon the bowels, and is hence a very suitable food for persons troubled with costiveness.

PORK.

Good *pork* is unquestionably a very savoury food, and affords strong nour-

ishment, well suited, as an occasional diet, to persons who lead an active or laborious life, but it is not easily digested, nor can it be considered so wholesome as beef or mutton. The too frequent and long continued use of this meat favours obesity, and is apt to disorder the stomach and bowels, and occasions eruptions upon the skin. When salted, or dried and smoked, pork is still more indigestible, and less nourishing, as well as less wholesome; with some delicate people, it immediately affects the bowels in rather a violent manner. The flesh of the sucking pig is reckoned a great delicacy; but it is digested with much difficulty. It produces very considerable disorder of the digestive organs of such individuals as are weak or sickly. Pork should be avoided by the dyspeptic, by the sedentary generally, and by all those who are liable to affections of the skin and bowels, or who are inclined to excess of fat.

Bacon.—Pork salted, dried, and sometimes smoked. Bacon is in general prepared from the flesh of the flanks and sides of the full-grown hog. It is a strong, very indigestible, and stimulating food, adapted only to persons of a robust frame, and accustomed to laborious occupations. The best mode of cooking bacon is by boiling it with vegetables. When fried with eggs, it is decidedly unwholesome.

Ham.—The thigh of the hog salted, dried, and smoked. When properly cured, and when boiled, ham is a very palatable and wholesome food. It is, however, stimulating and difficult of digestion, and hence only suited to such persons as are in full health and exercise much in the open air. Fried ham is still more indigestible than that which is boiled; it should be carefully avoided by dyspeptics and weakly and sedentary persons generally.

Sausages.—A very common article of food, prepared in this country chiefly from pork, chopped fine, with the addition of pepper, and various other spices, and often highly flavoured with garlic.

others they are dried and smoked. The sausages imported from the north and south of Europe are prepared from the flesh of various animals boiled. In whatever form they are eaten, sausages are an indigestible and unwholesome food, fitted only for the stomach of the most robust. Sedentary persons and dyspeptics should avoid them entirely. When sausages have been long kept, particularly in a damp place, they are apt to undergo certain changes, in consequence of which they become poisonous.

GAME.

Game, or such birds and beasts, adapted for food, as are allowed to enjoy their natural habits and modes of living, and are killed by fowling or hunting, are in general wholesome. When plainly cooked, they are more readily digested than the same species of animals domesticated and killed in the ordinary manner.

POULTRY.

Poultry, in the common acceptance of the term, includes all the domesticated birds used as food, as the common fowl, turkey, duck, and goose. In point of digestibility they rank nearly in the order we have enumerated them. The domestic fowl and turkey are also the lightest and most wholesome. The duck and goose are the most difficult of digestion, the most stimulating, and hence, the most apt to disagree with persons of weak stomachs and irritable habits.

Chicken soup.—Chicken soup, when properly prepared, is a light food, adapted to many invalids and to persons convalescent from fevers. For their use it should be prepared from the fleshy or lean parts of the chicken, well boiled in water, with a little salt, the scum and fat being taken off as it rises. The addition of broken crackers, or of rice or barley, may be made, according to circumstances. To many palates, the peculiar flavour given to the soup by plunging in it a slice of toasted bread, is extremely agreeable.

Highly spiced chicken soup is liable to the same objections as all high seasoned food.

FISH.

Fish are less nutritious than the flesh of warm-blooded animals, while to most stomachs they are more difficult of digestion. That they afford, however, sufficient nourishment to support the general health and vigour of the constitution, is proved by the condition of entire communities that subsist upon little else. Fish, however, especially some particular kinds, and in certain constitutions and states of the stomach, produce very considerable uneasiness, some febrile excitement, and a rash or eruption on the skin. When used habitually, there can be little doubt that they are apt to induce diseases of the skin and disorders of the bowels. The fat of fish is still more indigestible than that of other animals, and readily turns rancid on the stomach. In certain climates, fish possess a poisonous property at particular seasons, and, when not in season, all kinds of fish everywhere are very indigestible and unwholesome. The best mode of cooking fish is by boiling; stewed or fried fish are very indigestible. Salted and dried fish are a still more unwholesome food than such as are eaten fresh, and should therefore be avoided by all excepting the healthful and laborious, and even by them should be taken with great moderation. Butter and the acid fruits form improper sauces for fish, causing it almost always to oppress and irritate the stomach: nor should fish and milk ever be taken at the same meal; this combination has frequently occasioned severe bowel complaints.

Salt-water fish are the best, as their flesh is more solid, more agreeable, less liable to putrescency, and less viscid. They possess these desirable qualities, when fresh; when salted, they have all the properties of other salt fish, and consequently its disadvantages. Those fish which have scales are, in general, the most easily digested, and the best; and of all these the fresh herring, shad,

trout, perch, whiting, sole, cod, turbot, and flounder, are perhaps the most wholesome. Salmon, mackerel, skate, and sturgeon, with lobster and most other kinds of shell-fish, are digested with difficulty, and are, generally speaking, unwholesome.

SALTED MEAT.

Salted meat is more difficult of digestion than that which is eaten fresh, from the increased firmness of its texture; it is also less nutritious, both from the pickle in which it is immersed washing out, as it were, a considerable amount of its nutritive parts, and from the chemical change which it always undergoes to a greater or less extent. When used as food, salted meat should always be well boiled, and eaten with a large quantity of vegetable aliment.

CRABS AND LOBSTERS.

Crabs and lobsters, in whatever manner cooked, are indigestible and decidedly unwholesome. In certain persons they produce effects which might lead a person who is unaware of the fact, to believe that poison had been administered. Thus they sometimes cause a burning sensation in the throat, pain in the stomach, and eruptions on the skin. In other instances, violent vomiting and purging have followed the eating of them. When taken in excess, they have caused stupor, insensibility, and all the other phenomena of apoplexy.

TURTLE.

The flesh of the turtle, when plainly cooked, is a wholesome, palatable, and nourishing food—when, however, it is converted into soup, with an excess of spices, force-meat balls, and other pernicious articles, it is productive of not a little injury to the stomach, and to health generally.

MUSSELS.

The mussel—*mytilus edulis*—a shell-fish often used as food, is highly indigestible and unwholesome. It is apt, in certain individuals, to occasion vio-

lent affections of the stomach and bowels, restlessness, and agitation, and an insupportable itching, with eruptions on the skin: at some seasons of the year, and under particular circumstances, these effects are produced in all who eat of them.

OYSTERS.

Oysters, when taken raw or after being slightly cooked by roasting, are a light, nutritious, and easily digested food. The hard white part, or eye, as it is sometimes termed, should always be rejected. When thoroughly cooked, however, particularly when stewed or fried, oysters constitute, on the other hand, one of the most indigestible and pernicious articles of food in ordinary use. Eaten to excess in this form, they give rise frequently to the most violent and dangerous symptoms. When out of season, oysters are always unwholesome. To some stomachs, oysters invariably prove injurious, causing the same train of symptoms as were noticed when speaking of mussels. The juice of the oyster, thickened with grated biscuit and warmed, is sometimes an excellent diet for persons labouring under great delicacy of stomach. Salt water oysters should always be preferred to such as breed in rivers.

SOUPS.

For the labouring classes generally, there is scarcely a more wholesome and economical article of diet than soup. We allude now to the ordinary domestic soups, prepared from beef, mutton, or veal, with the addition of various vegetables. The more fashionable dishes, served at table under the name of soups, are merely refinements in cookery, adapted to render the articles of which they are composed as indigestible and stimulating as possible. They can be received, therefore, in no other light than as provocatives to appetite, and inducements to partake of food beyond the powers of the stomach and the wants of the system. In the preparation of soup, the meat and vegetables should be well boiled, and what-

ever seasoning is added to increase the flavour, care should be taken that it be not thereby rendered too stimulating. Potatoes, rice, and barley, as well as broken crackers or stale bread, form a wholesome addition to soup. The combinations of flour and butter, which are sometimes met with in soups, under the denomination of dumplings, are highly indigestible and improper. Soup should always be eaten with bread; this gives it that degree of consistency which, in all our food, appears to cause it to be the most readily acted upon by the stomach.

Many suppose that soups generally are calculated only for those whose powers of digestion are weak; but this is a mistake, the reverse being generally the case. When the digestive powers are weak or deranged, it will almost always be found that solid aliment agrees the best, particularly solid animal food; this the stomach seems to digest with ease and in a very short time; whereas, liquid food is apt, in such cases, unduly to distend the stomach and to require a greater strength of digestive power for its perfect assimilation.

Broth.—A term generally applied to the fluid in which meat has been boiled for a long time, with a slight addition of salt—this, with bread, forms often an excellent diet for persons to whom we wish to communicate nourishment without exciting to any extent the digestive organs, or increasing the heat of the system.

VARIETIES OF VEGETABLE FOOD.

Vegetable gluten.—This is one of the proximate principles of vegetables; it is contained in all the farinaceous seeds, and in many of the fruits, leaves, and roots of various plants. It is the principle which imparts to flour the property of fermenting and making bread. Of the nutritive properties of gluten, distinct from its other vegetable principles, we know but little. The superior nutritious powers of wheat flour, which contains a greater abundance of gluten than all the other *farina-*

naceous substances, sufficiently prove, however, that in combination with starch it is highly nourishing.

Starch.—Another of the proximate principles of vegetables; it is obtained from all the farinaceous seeds and roots. Of its nutritive properties there can be no doubt, though it is seldom used in a separate state as food. It is often administered boiled in water, as an article of diet during sickness, and is one of our best demulcents in various diseases of the bowels.

Gum.—The vegetable gum obtained from the Egyptian acacia, the gum-arabic of the shops, and from the plum, cherry, and other fruit trees, is highly nutritious. Whole caravans passing through the deserts have subsisted upon it alone, preserving at the same time a sufficient degree of vigour and strength. Gum is seldom, however, made use of as an aliment. Dissolved in water, it is largely used as a demulcent drink for patients labouring under irritation and inflammation of the stomach, and in all the febrile affections and diseases of the bowels it is almost the only drink or diet that should be allowed.

ARROW-ROOT.

The root of a tree, *Maranta arundinacea*, cultivated in the West Indies. It derives its name from being used by the Indians to produce the poison communicated to arrows, though it is not easy to believe it possessed of that power. A starch is obtained from this plant by the following process:—The roots, when a year old, are beaten to a pulp in a large wooden mortar; this pulp is well stirred in a large tub of clean water, and the fibrous part is wrung out, and thrown away. The milky liquor being passed through a hair sieve or coarse cloth, is allowed to settle, and the clear water is drained off. The white mass is again mixed with clean water, and drained; it is next dried in the sun, and is then a pure starch, as it is sold in the shops. The arrow-root contains in a small bulk a great proportion of nourishment. Boiled in water, it forms an excellent

nutritious jelly, well adapted for invalids and for children. The following is the method of preparing it: Take a dessert-spoonful of the powder, and add as much cold water as will make it into a paste; to this add eight ounces of boiling water, stir it briskly, and boil it for a few minutes, when it will become a clear, smooth jelly. To this may be added a little milk and sugar, with a little nutmeg to make it sit light on the stomach; or for children a little of the sugar of anise, or a few drops of the essence of caraway seeds, or of cinnamon.

SUGAR.

Sugar is a peculiar and well-known vegetable substance, procured chiefly from the *saccharum officinarum*, or sugar-cane, but yielded abundantly by various other vegetables, and contained in the greater part of the fruits in their ripe state. Sugar is highly nutritive, and when eaten in moderate quantities, is perfectly wholesome. It is apt, however, when eaten by itself in excess, to become quickly sour, or to produce sickness and nausea. Combined with other alimentary substances, it forms a useful and important article of food to all classes—so much so, that it may now be ranked as one of the chief necessities of life. The idea entertained by many of its injuring the teeth, is unfounded.

Molasses has, as an article of diet, nearly the same properties as sugar. It is merely a syrup, in which the sugar is mixed with a quantity of mucilage and other vegetable matter, and more or less water.

Sugar-plums.—We merely notice these articles in order to point out to parents the fact, that in common with most of the sugar toys sold to children, they often contain a quantity of plaster-of-paris, which, being insoluble, must be dangerous, if it accumulates in the bowels. Many of them are also covered with preparations of arsenic, copper, lead, and other poisonous paints, which, though in very minute quantities, nevertheless produce more or less of an injurious effect upon the stomach.

HONEY.

Honey very much resembles sugar in its alimentary properties; it is very nutritious, and when eaten in moderation with bread, is perfectly wholesome. Like sugar, however, it readily ferments, and when the stomach is delicate, it is apt to occasion griping and irritation of that organ and of the bowels, accompanied with considerable looseness.

OIL.

That obtained from the olive by expression, is the only vegetable oil used in this country as food. It is highly nutritious, but being difficult of digestion, is oppressive and irritating to a weak stomach. When used in cooking other articles of food, it becomes extremely unwholesome. In moderation, provided it be perfectly free from rancidity, pure olive oil, combined with vegetables, may be taken without injury, by persons in health and of active habits.

WHEAT.

Wheat, the *triticum hybernum*, (and other species,) of botanists, has been cultivated from time immemorial in Europe, in Asia, and in the northern parts of Africa, and the seeds employed as one of the most important and wholesome articles of food. Indeed, wheat flour is the only substance known from which good loaf bread can be made. In its nutritive properties and wholesomeness, it stands before almost all other of the vegetable substances used as food. The seeds of the wheat, when ripe, are ground to a fine powder, and by passing this powder through cloth sieves, of various degrees of fineness, it is separated into distinct portions. The fine flour constitutes the greatest portion; and the bran, which consists of the outer coat of the seed, the next greatest portion.

Bran.—The husks or shells of wheat, which remain in the bolting machine. It contains a portion of the mealy matter; and a decoction of it is

used as a drink in febrile diseases. This decoction is made by boiling a pint of water with two ounces of bran, till only three quarters of a pint remain; and then straining it. It is thought to have something of a laxative quality.

RICE.

The seeds of the *oryza sativa*, an excellent grain, much used in the East, and answering with them the same purposes as bread with us. When mixed with other food, it furnishes a wholesome article of diet, as it is not disposed to become sour, or to ferment in the stomach; but if it be taken in too large quantity, as it is not very stimulating, it is apt to remain long in the stomach, especially if it has been much boiled. Rice, simply boiled, is an excellent vegetable to be eaten with roasted or baked meats. Baked or boiled with milk, eggs, and sugar, it affords also a very light, wholesome, and palatable food. Rice is supposed to be in some degree astringent; and in looseness of the bowels, the water in which it has been boiled forms an excellent drink. By its mild mucilaginous properties, it aids greatly also in allaying irritation in all diseases of the bowels.

OATS.

The *avena sativa* of botanists. The meal obtained by grinding the grain of oats affords a wholesome and nutritious food, upon which many persons almost entirely subsist in Scotland, Ireland, and the north of England. It is generally used boiled with water, in the form of gruel, or made into thin cakes, which are baked or roasted, without their undergoing fermentation. Bread made from oat-meal fermented in the usual way, is neither palatable nor easily digested.

Gruel.—By gruel is generally understood oat-meal boiled in water. It may be made thin or thick, according to the circumstances under which it is resorted to as a diet, by the addition of a smaller or larger quantity of the

meal. It is a wholesome and nutritious food for children and delicate persons, and is better adapted as an article for the supper of such, than either tea or coffee. When desirable, it may be rendered more nutritious by the addition of milk and sugar; and its flavour may be heightened by the addition of a little grated nutmeg. Thin plain oat-meal gruel, or a gruel made in the same way from Indian meal, is a useful diet for convalescents from febrile diseases, and for those who have committed an excess in eating.

RYE.

The rye (*secale*) affords a meal, the food prepared from which, though less nutritious than wheat, is nevertheless wholesome and sufficiently nourishing. Rye bread is more difficult, however, of digestion, and being apt to turn sour in the stomach and to irritate the bowels, it is not so well adapted as wheat for the use of sedentary and delicate persons. The grains of rye are occasionally subject to a peculiar disease, termed *ergot*. When in this state, eaten in any quantities, or for any length of time, it is peculiarly unwholesome, and apt to occasion diseases of a very serious nature. Bread made of a mixture of rye and wheat is more palatable, and in other respects better than when made entirely of rye.

BARLEY.

The *hordeum distichum* of botanists. An annual plant, cultivated in almost every country of Europe. *Pearl barley* is prepared by grinding off the husks of the grain, and forming the latter into little round pellets, of a pearly whiteness. Barley forms an excellent article of nourishment when boiled in water, or made into cakes. Barley bread is not, however, a very pleasant nor wholesome food.

Barley-water.—The water in which barley is well boiled, forms one of our best drinks, in various febrile and other diseases. We annex two receipts for its preparation.

1. Take a couple of ounces of shelled

barley, wash it clean with cold water, put it into half a pint of boiling water, and let it boil for five minutes; pour off this water, and add to it two quarts of boiling water; simmer to two pints, and then strain.

2. The above is simple barley water; to a quart of this is frequently added two ounces of figs, sliced; the same quantity of raisins, stoned; half an ounce of liquorice, sliced and bruised; and a pint of water. Boil till it is reduced to a quart, and strain. These drinks are intended to assuage thirst in fevers, and inflammatory disorders, for which plenty of a mild diluting liquid is one of the chief remedies demanded by honest instinct, in terms too plain to be misunderstood.

MAIZE, OR INDIAN CORN.

The meal made by grinding Indian corn, prepared in various ways, but especially when made into mush, or with the addition of wheat flour baked into bread, furnishes a most wholesome, nourishing, and palatable food, and one well adapted for the support of the active and laborious generally. Indian bread, properly prepared, were it not from habit and fashion, would recommend itself to every palate by its agreeable flavour, and the beauty of its appearance; it is far preferable to the ordinary bread made from wheat alone. To make this bread, a mush should be made of the Indian meal in the usual way; into this, when cold, with the addition of a very small quantity of warm water, and a little salt and yeast, is to be kneaded a sufficiency of wheat flour to make it into a paste; when sufficiently raised, it is to be again kneaded, and baked in the same manner as bread.

BUCKWHEAT.

The flour, or meal, furnished by the seeds of the buckwheat, is incapable of being converted into a wholesome, palatable bread. As an article of food, it is generally used in the form of cakes, made by baking the meal, made into a thin paste with water and pro-

perly fermented. Buckwheat cakes, though extremely palatable, afford little nourishment, and are apt to disagree with delicate stomachs, in consequence of the large amount of melted butter which is eaten with them. They should be avoided, at least, by invalids and dyspeptics.

BREAD.

Bread is that most important article of diet, made from the *farina* of various plants. This *farina* consists of different principles, a mucilaginous saccharine matter, starch, and gluten, which is a peculiar substance having many of the properties of animal matter. This latter ingredient is most abundant in wheat flour, and gives it its great superiority, as an article of diet and for the manufacture of bread, over that of barley, rye, oats, and other grain. In the making of bread, flour is formed into a paste by mixing it with water, in the average proportion of two parts of water to three of flour; and the older and better the flour, the greater quantity of water will be required. If this paste be allowed to remain for some time, a fermentation takes place; and by the action of the ingredients on one another, important chemical changes take place, and alcohol, carbonic acid, and acetic acid, or vinegar, are formed. This paste is what is called *leaven*; and if a portion of it be added to new-made paste, the fermentation begins more speedily, carbonic acid is given off, but the gluten hinders its escape, and expanding like a membrane, forms numerous little cavities in a light and spongy mass. If there be too much leaven put into the paste, the bread has an unpleasant flavour; and if there is too little, it is compact and heavy. *Yeast*, or the head that collects on the surface of fermenting beer, being added to the dough, makes a bread superior to what is made with leaven; and is in this country generally employed for raising bread. After the dough has been properly raised, it is put into the oven, heated to about the temperature of

448°, and is there baked. Bread is very different from the flour of which it was made; the ingredients of the flour cannot be discovered in it; it mixes more easily with water, and is incomparably more digestible. That is, provided the bread has been properly fermented, and sufficiently baked.

There are three different kinds of bread used in this country, the fine, the wheaten, and the household. Fine bread is made of flour only; wheaten bread, of flour and a mixture of fine bran; and household of the whole grain, including both the coarse bran and the fine flour. The finer bread, from its greater quantity of starch, is apt to induce a degree of costiveness, which the coarse bread is enabled to counteract by its admixture of bran. Brown bread, or that made with a mixture of wheat and rye flour, is often usefully prescribed with a view to its laxative effect. As an article of diet, bread is of very great importance, in consequence of its nutritive qualities, and its utility, when joined with other food, both to correct the bad effects of too much animal diet, and to divide the aliment more completely by being intimately mixed with it. The best observations seem to prove, that a certain degree of distension of the stomach is necessary to proper digestion; and, consequently, that we could not conveniently feed on essences and jellies, in which the nourishing parts of the food are concentrated into the smallest possible bulk; and that even very rich and nutritive soups are much more readily acted upon by the stomach, when a proper proportion of bread is taken along with them. New bread is particularly unwholesome and indigestible, and should always be avoided, especially by patients troubled with indigestion. The only apparent exception is in the case of new rolls, which healthy stomachs manage to digest pretty well, provided they be well baked, and the crust bears a considerable proportion to the whole. Toasted bread is a very useful article of diet for tender stomachs, and for the diet of in-

valids. Bread, in some constitutions and diseases, is apt to sour on the stomach, especially in young children, in whom it often produces flatulence and costiveness. Where acidity occurs, biscuit, without butter, should be substituted, or the bread should be toasted.

In the foregoing remarks on bread, we have had principally in view leavened bread from wheat flour; though bread may be made of rye, barley, maize, potatoes, rice, and other substances; and notwithstanding, strictly speaking, biscuits, cakes, and other unleavened mixtures, are entitled to the appellation of bread. Most of the articles last mentioned are sufficiently nutritive, but difficult of digestion, though they are excellently adapted for the powerful stomachs of healthy individuals engaged in laborious and rustic occupations. The addition of butter to such articles before they are baked, causes them to disagree with the stomach, and to make them turn sour or rancid.

A good deal has been said about bread being frequently adulterated. In large communities, some dishonest persons will probably adulterate bread, as well as other articles of food; but the evils of such practices have been much exaggerated. Bean flour, or potato flour, have occasionally been mixed with wheat flour in the making of bread; and alum very frequently added, to increase its whiteness.

Toast.—Bread slightly toasted, but not burned, is a wholesome diet, especially for persons upon whose stomachs most articles of vegetable food, including bread in its ordinary state, are apt to turn sour. In eating toast, the butter should not be spread upon it until it is cold; the heat of the toast will otherwise produce a change in the butter, rendering it indigestible, and very irritating to the stomach.

Panado.—The crumb of wheaten bread softened with boiling water. It forms an excellent diet for children; for those affected with febrile diseases, and for women during the first days after delivery. It should be sweetened

with sugar, and for children, an addition of fresh milk will very generally be proper.

Biscuit.—Bread which is much, or doubly baked, as its name imports. It is not fermented, and is not much disposed to become acid in the stomach. Biscuits are, therefore, useful as an article of diet for children, and for those who are liable to acidity of the stomach. Biscuits keep a long time without spoiling; hence, their utility as a part of sea provisions. Those made with butter, have all the inconveniences of pastry, and should not be used by such persons as have diseased, or weak stomachs.

Ginger-bread.—A bread, or cake prepared of flour, molasses, and powdered ginger. When well baked, and eaten in moderation, it affords, under many circumstances, a useful stimulus to the stomach. It is an excellent article for individuals going to sea; it being frequently, in cases of sea-sickness, retained on the stomach, when every other article is immediately rejected. Travellers, also, on setting out early in the morning, will find, that eating a small portion of it, will afford a grateful stimulus to the stomach, when they have been obliged to commence their journey without breakfasting. Children, and young healthy individuals generally, should, however, eat it seldom, and very sparingly; all spices, and other stimulants, save that of a moderate quantity of wholesome food, are to their stomachs unnecessary and injurious.

PASTRY.

Pastry, or dough mixed with butter, is used in a great variety of forms, and though grateful to the taste, is highly indigestible, and injurious to health. Its use is a fertile cause of stomach complaints; it is apt also to occasion an overfulness of blood, convulsions, and diseases of the skin, in children; and a tendency to apoplexy and fever, in adults. At dinner, in the shape of pies and tarts, pastry is thrown into the already loaded stomach, and the over

taxed powers of that organ are unable to digest what is difficult to manage when they are the most vigorous. To children, pastry is peculiarly unsuitable. Its taste is pleasant, and injudicious fondness is apt to indulge them in it to excess; but those children who use it much, are subject to runnings from the ears, disorders of the bowels, eruptions on the skin, and inflammatory complaints of various kinds. Pastry should be entirely excluded from the nursery table. The same remarks are true of nearly all kinds of cakes containing butter or lard.

Puddings.—This is a term applied to various preparations of the farinaceous seeds, or vegetables. When composed of flour, or crumbs of bread, combined with suet and dried fruit, they are extremely indigestible, and constitute one of the most unwholesome dishes served at meals. Such puddings should be avoided entirely by sedentary and delicate persons: to the dyspeptic they will prove in the highest degree injurious. Puddings made of batter, baked or boiled, are also indigestible, and unwholesome. Bread and milk pudding, as well as rice pudding, is readily digested, and may be eaten in moderation, without injury. Pudding is also the name given to a kind of sausage made of the liver, or blood of animals, with the addition of fat, and certain vegetables and spices: This article is extremely indigestible, and is a suitable food only for the most robust individuals, whose days are passed in laborious occupations in the open air.

Pancakes and fritters.—Cakes made by frying a paste formed of wheat flour and the yolks of eggs, in lard. Although in persons who have active and strong powers of digestion, these cakes may produce little inconvenience, to all others, they will prove indigestible and injurious. By the sedentary and dyspeptic, they should be carefully avoided.

SAGO.

Sago is an alimentary substance,

prepared from a species of palm. Boiled with water, or milk, sago furnishes an agreeable and nourishing jelly; it is easy of digestion, and excites but little the system; and is, hence, an excellent article of diet for convalescents and for children.

SALEP.

Salep is a nutritious substance, obtained from two species of the *orchis*. Boiled in water, or milk, it forms a food which is light, nourishing, and easy of digestion, and, like the arrow-root and sago, adapted for the diet of children and invalids.

POTATO.

The root of the *solanum tuberosum*. This vegetable, which was unknown in Europe as an article of food, until about the commencement of the 17th century, constitutes an article of diet, which, whether we have reference to the nourishment it affords, the agreeableness of its flavour, its wholesome qualities, and the extent to which it is consumed in this country, as well as in many parts of Europe, is certainly of the greatest importance to man. It is difficult, indeed, to conceive how the poor and labouring classes could have subsisted, or maintained the health of their systems without it. To thousands of them, it, at this day, supplies the place of bread and of other vegetables, and to an equal number it affords almost their entire sustenance. Potatoes are the lightest and most nutritious of those vegetables which are served at table in their natural state; and, next to bread, the very best accompaniment to every kind of animal food. The dry, mealy kinds are the best, and should always be preferred to those which are hard and waxy. The best manner of cooking the potato, is by boiling, or by roasting. Finely mashed, or fried potatoes are indigestible, and oppressive to the stomach. Combined with flour, potatoes are often made into bread, and in this manner, also, afford a cheap and wholesome food.

Sweet potato.—The root of the *convolvulus batata*. The sweet potato, besides a considerable amount of farinaceous matter, contains a portion of a saccharine substance. It is unquestionably highly nutritious; and when simply roasted, or properly boiled, forms a very palatable and wholesome article of food. It does not appear, however, to be so ready of digestion as the common potato. It should, therefore, be eaten in very moderate quantities by persons of weak stomachs.

YAM.

An esculent root, obtained principally from three species of *dioscorea*, the *alata*, *bulbifera*, and *sativa*. They grow spontaneously in both Indies, and the roots are eaten as the potato is with us, which they somewhat resemble in taste; but their flavour is more luscious. When boiled, or roasted, they are nutritious, and easy of digestion; and are preferred by many to wheaten bread. They are sometimes ground into flour, and made into bread and puddings. They might doubtless be raised in perfection in many parts of the United States; and we are convinced, that on many accounts, they are a preferable food to the potato.

CABBAGE.

The several varieties of cabbage constitute an article of food, than which few are more generally and extensively made use of in this country. For the healthy, robust, and labouring part of the community, cabbage forms an excellent addition to their usual meat diet; and, when eaten in moderation, appears to agree very well with their stomach. But, after all, cabbage affords but little nutriment, is very flatulent, and where the stomach is delicate or irritable, it is very apt to produce uneasy sensations, cholic, or even a tolerably severe attack of vomiting and purging. For the invalid, therefore, or persons who lead sedentary and inactive lives, cabbage is a very improper food. The only proper mode of cooking cabbage is by boiling it, until such time as it is

perfectly tender. Boiling it in two waters deprives it, in a great degree, of that unpleasant taste and smell, which are so disagreeable to many palates.

Sourcroust, or cabbage, prepared in a particular manner, and allowed to undergo fermentation to a certain extent, forms an excellent and wholesome vegetable food for the crews of ships destined for long voyages; and for all persons so situated as to be deprived of a sufficient supply of fresh vegetables. In regard to its effects upon individuals, whose powers of digestion are impaired, the same remarks will apply as to cabbage in its recent state.

Brocoli.—*Brassica italica.*—A species of cabbage which furnishes a very agreeable article of food. Though sweeter, and of a more tender texture than the other varieties of cabbage, it is still apt to disagree with weak stomachs, producing flatulence, and often cholicky pains. By the sedentary and dyspeptic, it should, therefore, be carefully abstained from.

Cauliflower is perhaps the species of cabbage, which is the most readily digested by persons in ordinary health. It is liable, however, to the same objections as an article of food, for the sedentary and inactive, as cabbage in general.

Artichoke.—*Cinara scolymus.*—A kind of thistle, cultivated for the table. The only alimentary part of the plant is the receptacle of the flower. The whole of this receptacle, even in its recent state, possesses very little of the acrimony peculiar to other portions of the plant; and, when well boiled, it is perfectly mild, of a tender texture, somewhat sweet and mucilaginous, and, therefore, tolerably nourishing. It is sometimes, however, rendered unwholesome by being eaten with a large quantity of melted butter.

The Jerusalem artichoke, *helianthus tuberosus*, is a species of sun-flower, having fleshy tuberculated roots, somewhat resembling small potatoes. These tubercles are sometimes eaten as food; and when roasted or boiled, they acquire a mealy texture, like the potato,

but with a sweet taste, resembling yam. As an article of diet, they may be ranked with the potato, though they are very apt to be more watery and flatulent than the latter, when of a good quality.

Spinage.—The *spinacia oleracea*, of botanists. The tender leaves of the spinage well boiled, constitute one of the best and most wholesome of the green vegetables in common use. They act gently upon the bowels, and are particularly useful to persons habitually costive.

Asparagus.—The *asparagus officinalis* of botanists. The asparagus has a creeping root, throwing up numerous scaly erect stems, the tender ends of which, on their first appearance above the ground, are the parts used as food. These shoots are, when sufficiently boiled, readily dissolved in the stomach, and are not disposed to create flatulence and acidity. Asparagus is wholesome only when in its early state; when old, it is remarkably acrid.

Poke.—The tender shoots given off in the spring from the roots of the poke, (the *phytolacca decandria*,) cooked in the same manner as the asparagus, is esteemed by many an equally delicious and wholesome vegetable. It is difficult, indeed, to distinguish it, so far as regards its flavour, from the latter.

BEET.

The *beta vulgaris*.—The root of the plant is of a sweet taste, and a beautiful red colour. In some parts of Europe, a considerable quantity of sugar is extracted from it; and hence, it must evidently possess considerable nutriment. When well boiled, it affords an excellent vegetable for the table. When eaten with vinegar, it will not, however, be found to agree with such stomachs as possess but feeble powers of digestion.

CARROT.

The *daucus carota*.—The root of the carrot, like that of the beet, contains a considerable amount of saccharine matter; it contains also a quantity

of mucilage. It may be presumed, therefore, to be nutritive in no small degree. When young, and sufficiently boiled, the carrot forms an excellent vegetable for the table. It is liable, however, to cause flatulence in persons of a delicate stomach. When too old, the fibrous matter it then contains, diminishes greatly its digestibility.

PARSNIP.

The *pastinaca sativa*.—The root of the parsnip, when well boiled, affords a wholesome and very nourishing food, and one not difficult of digestion. Its nutritive properties depend on the large amount of mucilaginous and saccharine matter which it contains. The peculiar flavour of the parsnip renders it, however, offensive to some stomachs.

TURNIP.

The *brassica rapa*.—The root of the turnip forms a very agreeable article of diet, to be taken along with animal food. It affords an excellent, mild nourishment, when there is nothing in the state of the stomach and bowels to forbid vegetable diet. Turnips should be well boiled, and have the water well pressed out of them.

ONION.

The root of the *allium cepa*; it is used both as a condiment and as an article of food. Eaten raw, onions, in general, are much too stimulating for the generality of stomachs; they produce, also, a disagreeable fetor of the breath, and perspiration; and when the stomach is weak and irritable, they cause a sense of oppression, and heat, and sometimes griping. They are most wholesome when boiled or roasted. In this state, they contain a large portion of a mucilaginous matter, combined with a decided sweetness, and may be considered a nutritious and wholesome vegetable for persons in health.

Leek.—The *allium porrum* is eaten as a condiment in its raw state; and when boiled, as a vegetable aliment. It is a common ingredient in soups and

various sauces. When boiled, it is sufficiently nutritious and wholesome for those in health; but it is apt to prove flatulent upon delicate stomachs.

Garlic.—The *allium sativum*.—In this country, the root of the garlic is used chiefly as a condiment; when taken in moderation with certain kinds of food, it is not unwholesome. It, no doubt, contains a nutritive principle; but its taste being offensive to most stomachs, causes it to be used by few as an article of food.

LEGUMEN, OR PULSE.

Beans and peas, which are included under the general name of legumens, or pulse, afford a species of farinaceous aliment, containing a good deal of nourishment; but they are very difficult of digestion, particularly in their dried state. They are apt to lie heavy on the stomach, and to occasion flatulence. Hence, as a diet, they are only proper for persons having strong powers of digestion. By the sedentary and dyspeptic, they ought on no account to be used. The symptoms of uncasiness which they cause in such are often very violent. The green pods of certain beans, previously to the full development of the seeds within, when well boiled, afford a pleasant vegetable food, by no means difficult of solution in the stomach.

SALADS.

Vegetables eaten in their raw state, with the addition of vinegar, spices and oil, have received the general name of salads. Few of the salads, in common use, afford much nourishment, and like all raw vegetables, are, to a certain extent, indigestible; their indigestibility is likewise often increased by the manner in which they are prepared at table; while the large addition of pepper and other spices combined with them, renders them not unfrequently decidedly injurious to the stomach by over-exciting it. To the very class of persons by whom they are most freely partaken, the luxurious and inactive, they prove always the most prejudicial.

The propriety of eating any vegetable, with the exception of some fruits, without cooking, is, as a general rule, at least doubtful. To those, however, who from any cause are restricted to a diet of salted and smoked meat, raw vegetables, rendered more palatable by the addition of a moderate quantity of vinegar and spices, are supposed to be beneficial; but even then, when a sufficient supply of wholesome cooked vegetables can be procured, we apprehend that the latter will be found most conducive to health.

Celery.—*Apium graveolens*.—The long leaf-stalks of the celery, when blanched by being covered, during their growth, in trenches from the sun, are eaten raw as a salad, with the addition of vinegar and pepper, and sometimes olive oil. In this manner they are not, however, very digestible; and like all salads, will disagree with delicate stomachs.

Cresses.—*Sisymbrium nasturtium*.—A plant growing plentifully in brooks and stagnant waters. The leaves have a pungent taste, and a penetrating smell like that of mustard-seed, and are eaten as a salad in their raw state, with oil and spices. Used in moderation, they form an excellent addition to animal food for persons in health; when the digestive powers of the stomach are weak, they are, however, apt to cause more or less disturbance.

Lettuce.—*Lactuca sativa*.—The leaves of the common garden, and other species of lettuce, eaten raw, with oil, or vinegar and spices, is one of the most common salads in ordinary use. It can neither be considered nutritive nor digestible, and as it contains a considerable amount of a narcotic principle, we must consider it as the most exceptionable salad for the general class of persons living in our cities. When used, the leaves should be young, perfectly white and tender.

CUCUMBER.

The fruit of the *cucumis sativa*.—It is eaten raw, and in its unripe state. Possessing very little or no nutritive

properties, and extremely difficult of digestion, few vegetables of which the inhabitants of this country partake so largely, is so pernicious as the cucumber. We would advise the dyspeptic, and those whose powers of digestion are in any degree enfeebled, to avoid it as they would poison.

RADISHES.

The root of the *raphanus sativus* is eaten raw, with salt. It contains only a very small amount of nutritious matter, and being very difficult of digestion, is an improper article to be taken by persons of delicate stomachs; in such, it is apt to occasion considerable uneasiness, flatulence and pain.

MUSHROOM.

The mushroom is a very indigestible and unwholesome article of food, affording little or no nourishment. It ought never to be eaten by persons of delicate stomachs. The mushroom is frequently poisonous, and occasions, when taken into the stomach, the most violent vomiting and purging, and other unpleasant symptoms.

FRUITS.

Fruits are much used as an article of luxury; and from the bad effects they too frequently produce, they would seem to be by no means of a salutary nature. Looseness, vomiting, indigestion, and even inflammation of the bowels, have been known evidently to proceed from their use in certain cases. Yet it is pretty certain that the fault has lain not with the fruit, but with the consumer. When fruit is eaten in large quantity, and in an unripe state, when it is forced into the stomach, already loaded with a plentiful dinner of soup, meat, pudding, and all the items of a luxurious table; it is not at all wonderful that it should produce disorder of the digestive organs. But when fruit is taken in moderation, of a proper quality, and at proper seasons, no bad effects are to be dreaded. Fruits are evidently useful, and they are kindly sent at the very season when the system,

heated and excited by the warmth of summer, stands in need of something cooling and laxative to be taken with the food.

The fruits in most common use may be classed under the heads of stone-fruits, the apple kind, berries, (without affecting botanical accuracy in the use of this term,) and farinaceous fruits. The stone-fruits are those which are of most difficult digestion. *Plums* and *cherries* are particularly so. The ripe *peach* is both delicate in its flavour and easily digestible; the *apricot* is also very wholesome; but the *nectarine* is liable to disagree with some stomachs. The fruits of the *apple* kind are somewhat firm in their texture, and therefore rather indigestible, and liable to be detained in the stomach. *Pears* are rather more wholesome, as their texture is softer. The white skin of the *orange* should be carefully rejected, but the inner pulp is grateful to most stomachs, whether in health or sickness. The fruits of the berry kind are the most wholesome of all. The *strawberry* and *raspberry* are particularly good; the *grape* is cooling and laxative, but the husks and seeds are to be rejected; the *gooseberry* is not so digestible, especially if the skin be swallowed. It is only the pulp of these fruits that is digested; the seeds always pass through the body unchanged, unless they be chewed. Other berries are generally baked in pies, but the pastry should be sparingly used. The *melon*, a farinaceous fruit, is almost certain to disagree with weak stomachs; especially when eaten after dinner. Many fruits, otherwise unsafe, are much improved by cooking. Baked apples are an excellent article of food, and may even be of benefit to dyspeptic patients. Dried fruits are generally esteemed very safe, but they are apt to run into fermentation in the stomachs of children and delicate persons, from the quantity of sugar which they contain.

Apples.—Of this fruit there are several varieties. All of them, when perfectly ripe and mellow, may be considered as wholesome. Though not so

liable to run into fermentation as some of the other fruits; yet, being of a firm texture, they are somewhat difficult of digestion, and remain long in the stomach. Hence they should be avoided by such persons as have weak digestive powers. Stewed or baked with sugar, they are rendered more soluble and wholesome, and in this form prove gently laxative. Dried apples stewed, form an excellent sauce for various species of animal food.

Cherries. There are several varieties of the cherry. Some contain much water and sugar, others a large proportion of acid; others, again, present a soft, mucilaginous pulp. The last, when fully ripe, are the most wholesome for eating. In weak stomachs, and when taken in immoderate quantities, cherries, especially the two first varieties, are apt to occasion flatulence and colic. This fruit is, in general, more wholesome when cooked with sugar. In eating cherries, care should be taken to reject the stones; when these are incautiously swallowed, they are occasionally retained in the bowels, producing alarming and even fatal symptoms.

Currants, perfectly ripe, are an agreeable fruit, and perfectly wholesome when eaten in moderation; they have less of a laxative effect upon the bowels than strawberries or gooseberries. The skin and seeds are in a great measure indigestible, and as they constitute a large portion of the dried currants that are imported, these are very apt to cause more or less irritation of the stomach and bowels—this indicates the necessity of great caution in their use. The plumpest and sweetest should be preferred.

Cranberry. The berries of the *oxycoccus*. It is a plant which grows extensively in many parts of the United States, in uncultivated wet or marshy ground. The fruit, or berries, when ripe, are of a bright scarlet colour, and an agreeable acid taste. They are employed in great quantities, stewed with sugar, as a sauce to various species of poultry, and for tarts. In this form

they possess a rich and delicious flavour, and are sufficiently wholesome when eaten in moderation. For ducks, geese, and other species of poultry abounding in fat, they form a very appropriate sauce.

Dates. The fruit of the *phoenix dactylifera*, a species of palm. It is in its dried state that the date is met with in this country. This fruit abounds in sugar, and is highly nutritious. Like most saccharine substances, it is very liable to oppress and disorder persons of weak stomachs, and by them should be eaten with caution.

Figs. The fruit of the *figus carica*. The dried fig contains a large portion of sugar, considerable mucilage, and a small quantity of oil. When eaten in moderation, they are grateful to the stomach, and more easy of digestion than most of the dried fruits. When eaten alone, however, they are apt to occasion flatulency, and to disagree with feeble stomachs. The fig acts as a gentle laxative, and may be eaten occasionally with great advantage by persons habitually constive.

Gooseberry. The fruit of the *ribes grossularia*. When perfectly ripe, they are a delicious and wholesome fruit. In eating them, the skins should always be rejected.

Grapes. The ripe grape, especially of the rich saccharine species, is among the most luscious and wholesome of our summer fruits. It is the pulp only, however, divested of the seeds, that should be eaten. The large portion of sugar and mucilage contained in grapes renders them nutritive, while their slight amount of acidity facilitates their easy digestion.

Raisins, or grapes in a dried state, are equally nourishing and wholesome to healthy persons with the fruit in its recent state. The skins, however, which can scarcely be rejected in eating them, being rendered tougher by drying, cause raisins to be more indigestible than fresh grapes. They are also more apt to disagree with weak stomachs, in consequence of a portion of their acid being lost in the process of drying, while,

at the same time, a larger amount of sugar is developed. The more purple and plump the raisins, the more wholesome they are. They should always be eaten with bread, and never in large quantities, otherwise they are apt to produce flatulence and griping pains.

Lemon. The fruit of the *Citrus acida*, and the *Lime*, the fruit of the *Citrus limonium*, which do not differ the least in their qualities, are never eaten as food, from their extreme acidity. The juice of both enters as a condiment in various made dishes. The juice also, diffused in boiling water, and sweetened with sugar, constitutes a very pleasant beverage for quenching the thirst, and allaying heat during the summer season. The *lemonade* thus made may be drank, occasionally, without injury; but it is not proper as a habitual beverage, as it is very apt to disorder the digestion, and to produce irritation and pain of the bowels. Preserved limes are indigestible, and one of the least wholesome of the ordinary sweetmeats served at table.

Oranges. The fruit of the *citrus aurantium*. The juice of the orange is gratefully acid, and taken in summer, is well adapted to allay thirst, and take off that sense of dryness in the mouth and throat, experienced by persons who perspire much during exercise. For the same reason, it is often allowed to patients labouring under fever. The pulp, however, in which the juice is contained, is indigestible, and should not be eaten; neither should the seeds nor white tough rind. The best mode of using the orange, to prevent injury to the stomach and digestive organs, is to squeeze out the juice, and drink it diluted with water, and with the addition, if necessary, of sugar. The yellow rind of oranges is frequently used to communicate an agreeable flavour to various dishes; in moderation it is not injurious.

Pear. The fruit of the *pyrus communis*. There are several species of pear, some of which, from the firmness of their texture and the acerbity of their juices, are improper for eating, unless

well cooked with sugar. Others, however, when perfectly ripe, present a soft juicy pulp, of an agreeable flavour, and readily digested by a healthy stomach.

Peach. The fruit of the *amygdalus persica*. The peach is unquestionably one of the most wholesome as well as most delicious of the stone-fruits. When perfectly ripe and mellow, it may be eaten in moderation, without inconvenience. The outer skin should, however, be rejected. Neither peaches, nor any other kind of fruit, should be eaten after a copious dinner. They will then be very apt to oppress the stomach, and to cause acidity and flatulence.

Pine-apple. The fruit of the *bromelia ananas*. A delicious fruit of tropical climates. But however delicious in flavour, the pine-apple, as we obtain it in this country, is very indigestible, and when eaten freely, decidedly injurious to the stomach and bowels.

Plums should never be eaten, unless perfectly ripe and mellow. The skin and stones should always be rejected. In their ripe state, or cooked, plums are wholesome and readily digested. But when unripe, or sour, they cause disorder of the stomach and bowels, with flatulence and griping.

Prunes. Plums, when dried, are denominated prunes. Eaten uncooked, they are difficult of digestion and unwholesome. When stewed, they have a laxative effect, and freely used in this form, are an excellent means for obtaining a free state of the bowels in persons troubled with costiveness.

Raspberry. The berries of the *rubus idæus*, are a very wholesome and grateful fruit. Next to strawberries, they are perhaps one of our very best summer fruits of the berry kind.

Strawberry. The fruit of the *fragaria vesca*. In point of flavour, in the ease with which they are digested by most stomachs, and their general wholesomeness, perfectly ripe strawberries rank first upon the list of summer fruits. Eaten in moderation, at a period when the stomach is not actively engaged in the digestion of other food, they are seldom found to produce the

least unpleasant effect on persons in the enjoyment of ordinary health.

Tamarinds. The fruit of the *tamarindus indica*, preserved in sugar. Tamarinds contain too large an amount of acid, and act too powerfully upon the bowels, to permit their being eaten as food. They form, however, a very agreeable and effectual laxative; and a drink made by pouring boiling water upon them, is well adapted for quenching thirst, especially in patients labouring under fever.

Melons. The *canteleupe* and *water-melon* are the only ones eaten in this country. They both contain a saccharine juice, which may be presumed to afford some nutriment, but they are both very indigestible, and the pulp of the water-melon more especially, is apt to oppress and irritate delicate stomachs. They should be eaten, therefore, with great caution; and by the dyspeptic, and those subject to affections of the bowels, abstained from entirely.

NUTS.

The kernels of oily nuts contain a farinaceous substance, combined with a large quantity of bland oil. They are all extremely nutritious, but difficult of digestion, and irritating to the stomach, upon which they are apt to turn rancid, causing heart-burn, acid eructation, feverish heat of the skin, pain in the head, and restlessness or disturbed sleep. They are suited only to such persons as are in health and possess active digestive powers. They should never be eaten by the dyspeptic, nor by any one when the stomach is already loaded with other food. They should always be perfectly fresh, and taken with a little salt and with bread, and well chewed before they are swallowed. When taken to excess, or in certain conditions of the stomach, they often occasion difficulty of breathing, and sometimes very violent and dangerous complaints of the bowels.

Almonds. A well known nut, the product of the *amygdalus communis*. There are two varieties of almonds, the sweet and the bitter. The bitter

almonds are now seldom eaten; they contain an active poison, in consequence of which they are liable to produce injurious effects. Sweet almonds possess little nourishment, and are difficult of digestion, unless thoroughly triturated. In consequence of the oil they contain, they are very apt to produce disagreeable symptoms when eaten by persons the digestive powers of whose stomachs are impaired. By age they often become rancid, and are then highly acrid, and should on no account be eaten.

Chestnuts contain a considerable amount of nutritious matter.* They indeed form a considerable part of the food eaten by the peasantry, in many parts of the south of Europe. The raw fruit, however, is not readily dissolved in the stomach; it is also very flatulent, and apt to occasion colicky pains and bowel complaints. When kept for some time, they evolve a greater amount of saccharine matter, becoming sweeter and more digestible. When roasted, the chestnut becomes still more light and nutritive; they are still, however, as well as when boiled, flatulent, and should be avoided by persons of delicate stomachs, and by dyspeptics generally. From the chestnut may be obtained a farinaceous matter, fit to be made into bread; this bread, however, is neither palatable nor wholesome.

Cocoa-nut. The fruit of a species of palm, *cocos nucifera*. Within the hard woody shell of the cocoa-nut is a thick layer of a solid white substance of a sweet and agreeable taste, which no doubt contains a considerable amount of nutritive matter; it is, however, extremely difficult of digestion, and very apt to disagree with delicate stomachs. The interior of the nut is filled with a fluid, resembling milk, which is made use of in the West Indies as an agreeable beverage to quench thirst.

CONDIMENTS.

Condiments, or seasonings, are those substances which, though not nutritive themselves, are taken into the stomach along with the food, to promote its digestion, and to correct any injurious

properties it may possess. Some such assistance would seem to be necessary to all animals; and the lower animals instinctively seek after bitters, salt, &c. to take with their food. Condiments are of various kinds, as salt, acids, aromatics, oils. Some of those in most frequent use are, sea-salt, vinegar, lemon-juice, pepper, cinnamon, nutmegs, cloves, ginger, alspice, garlic, onions, leeks, horse-radish, mustard. A small proportion of these condiments may be used with propriety. While they give an additional relish to the food, there can be little doubt that they aid its digestion. But the misfortune is, that in the use of condiments mankind are prone to excess. They are used as stimulants to induce the stomach to partake of food, when already loaded to repletion, or exhausted by habits of intemperance. Condiments also are injurious to the stomachs of those who indulge in the constant use of animal food. They furnish a temptation to excessive indulgence, and ultimately occasion organic disease of the stomach or liver, and permanent injury of the digestive functions. Oils and butter are also to be regarded as condiments; their use ought to be sparing.

All kinds of seasoning, with the exception of salt, are improper for children, and young persons generally.

Acids. Vinegar, and a number of acid fruits and vegetables, or their juices, are often used as condiments to our food, and from experience we should judge, that, during a healthy state of the stomach, and when used in moderation, they are, generally speaking, a very useful addition to an animal diet; especially such as is rich in fat or gelatine. They appear to render it less liable to disturb the stomach, and to cause it to be more readily digested. The addition of lemon-juice to rich and glutinous soup, and the custom of eating apple-sauce with pork, or cranberry-sauce with ducks and geese, may be viewed, therefore, in a favourable light.

Vinegar. A vegetable acid, the product of the acetous fermentation. For commerce it is procured either by

allowing the fermentation of wines, or of cider, to progress until the liquor becomes completely acid. Vinegar is a grateful acid, much used as a condiment with food. In small quantities, it is a grateful and wholesome stimulant; it also checks the fermentation of certain species of aliment in the stomach, and prevents raw vegetables from inducing flatulence; it seems, also, to render fatty and gelatinous substances more easy of digestion, and less liable to offend the stomach. Taken in too large quantities, it, however, produces serious injury to the stomach. Various fruits preserved in vinegar are served at table as condiments, under the name of *pickles*. Prepared in general from firm, unripe fruits, they are extremely indigestible, and when taken in any quantity, disturb the stomach, interfere with the digestion of the food, and often cause griping or colicky pains, and other disagreeable or even dangerous effects.

Anchovy. A small fish, of the herring kind, imported from the coasts of the Mediterranean sea, in a pickled state. Anchovies are either eaten as a condiment, or are formed into sauce for other fish. They possess little nutriment, and in consequence of the spices with which they are generally prepared, not only act as provocatives of the appetite, causing too much food to be eaten, but of themselves act injuriously upon the stomach. They should be ranked among those luxuries of the table from which it is better to abstain.

Ginger is the root of the *amomum zingiber*. Its properties are those of a stimulating aromatic, and in moderation it forms a useful and very wholesome condiment. A weak infusion of ginger in boiling water forms an excellent drink for persons the tone of whose stomachs and bowels has been weakened by excess in eating or drinking. Persons who have adopted the commendable resolution of abandoning at once the habitual use of intoxicating drinks, in which they had for many years indulged, will find in the ginger tea a useful beverage, the use of which

will remove that sense of sinking at the stomach, caused by the sudden suspension of its accustomed stimulus.

Horse-radish. The root of the *cochlearia armoracea*. It has a strong, pungent smell; and a penetrating acrid taste. Grated or scraped, with the addition of vinegar, the horse-radish is much used at table as a condiment for various kinds of animal food. In moderation it is wholesome; but with many persons it will be found in any quantity to produce irritation of the stomach and colic.

Mustard. The flour made by grinding the seeds of the *sinapis nigra*; it is used as a condiment. In moderation, generally speaking, it is not unwholesome; but with many persons the smallest quantity of mustard causes great irritation and heat of the stomach and griping.

Nutmegs, the fruit of the *myristica moschata*, a native of the Molucca Islands. It is chiefly used to communicate an agreeable flavour to various articles of food; when in moderation, it constitutes a pleasant and harmless condiment. It is too much the custom, however, to add nutmeg to the gruel and panado used as the diet of lying-in women and convalescent patients; here it is injurious by increasing too much the stimulating properties of the food.

Olives. Pickled olives are eaten chiefly as a condiment. They are decidedly nauseous to most palates when first eaten, but habit soon renders their taste not only pleasant, but a peculiar relish for them is created. Olives, however, are indigestible and irritating to the stomach. They who have gained from active exercise a keen healthy appetite, need them not; and they whose appetite is weak, or entirely lost, will receive injury from their use.

Pepper. An aromatic and stimulating production of several plants of warm countries, constituting the most common of the stimulating condiments eaten with our food. When used in very moderate quantities, it is not injurious, in some instances decidedly wholesome; but when resorted to in

excess, or as a stimulant to spur on the jaded appetite to new efforts, it is destructive to health.

Cayenne-pepper, capsicum annuum. The pods of the plant constitute one of the most heating and stimulating of the various condiments employed in cookery. In moderation, it forms a very proper addition to some kinds of food, but when used in excess it produces all the injurious effects which arise from the immoderate use of condiments in general.

Salt appears to be a natural and necessary stimulant to the digestive organs of all warm-blooded animals; hence they are led instinctively to immense distances in pursuit of it. In man, it seems not only necessary to render his diet sufficiently sapid, but to a certain extent to be absolutely essential to health. When entirely deprived of it, the digestive organs become diseased, and nutrition imperfect. The excessive use of salt is, however, in the highest degree injurious.

Preserves are different kinds of fruits, boiled or stewed in sugar or molasses. When eaten in moderation, with milk or bread, preserves constitute an innocent, if not advantageous, addition to our meals; provided always, they are prepared of fruit tolerably ripe and not too sour. With the stomach of the dyspeptic, however, preserves will seldom agree. Many of the foreign preserves being prepared of vegetables of a very tough consistence, and containing a large amount of woody fibre, are altogether indigestible, and invariably disturb the stomach and bowels of those who partake of them. Preserves should never be kept in glazed earthen-ware vessels. The oxyde of lead contained in the glazing being acted upon by the vegetable acids, renders the fruit and its syrup to a certain extent poisonous.

COOKERY.

Cookery is that application of heat to our various aliments, either simple or combined, by which they are prepared in some measure for the action of the stomach, and rendered both

more agreeable to the palate, and more susceptible of undergoing the various processes of digestion. By cookery, the nutritive principles are altered, both in their chemical arrangements and in their mechanical texture. Its principal operations are boiling, roasting, frying, broiling, and baking. By *boiling*, the denser portions of the food are rendered softer, more pulpy, and easier of digestion; but the food at the same time is deprived of some of its nutritive properties, by the removal of a portion of its soluble contents by the water in which it is immersed. The albumen is rendered solid, and the gelatine is converted into a glutinous substance. When meat is boiled too long or too fast, if it contains much albumen, as in beef, we shall obtain a hard and indigestible mass, like an over-boiled egg; or in young meats, such as veal, where there is more gelatine, the result will be a gelatinous substance, not easily digestible. Young and viscid food, therefore, as veal; chickens, &c. are more wholesome when roasted than when boiled, and are easier digested. Boiling is very properly applied to vegetables; as it renders them more soluble in the stomach, and deprives them of a quantity of air and other particles which are injurious to weak stomachs. But even in this case, the operation may be carried to an injurious extent; thus, potatoes are frequently boiled to the state of a dry insipid powder; instead of being preserved in that state, in which the parts of which they are composed are rendered soft and gelatinous, so as to retain their shape, yet be very easily separated. On the other hand, the cabbage tribe and carrots are frequently not boiled long enough, in which state they are highly indigestible. The quality of the water used in boiling requires some attention; mutton boiled in hard water is more tender and juicy than when soft water is used, while hard water renders vegetables harder and less digestible.

Roasting. By this process, the fibre of meats is corrugated, the albumen

coagulated, the fat melted, and the water evaporated. As the operation proceeds, the surface becomes first brown, and then scorched; and the tendinous parts are rendered soft and gluey. When underdone, roasted meat may be more nourishing; but, from the closeness of its texture, it will not be so easily digested. The fat, particularly that on the surface, undergoes a change, by the effects of the heat to which it is exposed in roasting, which renders it indigestible and irritating to the stomach. Animal matter loses more by roasting than by boiling; by boiling, mutton loses one-fifth, and beef one-fourth; but by roasting, they lose one-third of their weight.

Frying. This process is perhaps the most objectionable of all the operations of cookery. The heat is applied through the medium of boiling oil or fat, which is rendered empyreumatic, and therefore extremely liable to disagree with the stomach.

Broiling. By this operation, the sudden browning or hardening of the surface prevents the evaporation of the juices of the meat, and imparts a peculiar tenderness to it. It is the form selected as the most eligible, by those who seek to invigorate themselves by training. But though feeding on it may induce a state of body fit for the purposes intended, the over-excited health so brought on is peculiarly liable to become changed into disease from very slight causes.

Baking. The peculiarity of this process depends upon the substance being heated in a confined space, which does not permit the escape of the fumes arising from it; the meat is, therefore, from the retention of its juices, rendered more savoury and tender. But baked meats are not so easily digested, on account of the greater retention of their oils, which are, moreover, in an empyreumatic state. Such dishes, accordingly, require the stimulus of various seasonings to increase the digestive powers of the stomach. As there is often much pastry, made with butter, used to confine the juices of the meats

baked, such accompaniments render meat pies of all kinds of food the most difficult of digestion, and peculiarly unfit to form a part of the diet of children. Besides, their use by children, too early teaches them to please the palate at the expense of their health.

Stewing has a similar effect to boiling in depriving the meat of much of its nourishing juices; but as the fluid in which the meat is stewed is made use of as food in connexion with the latter, little nourishment is absolutely lost by this mode of cooking. Stewed meat is less easily digested than that which is boiled; it is also more stimulating. Simple stewing, therefore, is a mode of cookery well adapted for the food eaten by those of robust frames and laborious habits; but for the food of the sedentary and dyspeptic it is not so proper. Unfortunately it is for the latter, however, that food is most frequently prepared in this manner; and to render it still more stimulating and indigestible, various spices, butter, wine, and a variety of other ingredients, are frequently added during the process. These additions, however much they may gratify the palate, never fail to diminish the digestibility of the food, and render it injurious to the health of the stomach, and sooner or later, they who partake habitually of dishes thus prepared, are made sensible of their pernicious effects by the occurrence of painful and dangerous symptoms of disease.

MEALS.

The quantity of food taken at regular intervals, is commonly understood by the term *meal*. Regularity in the number of meals, and the periods at which they are taken, is of the first importance; on it much of the equable and pleasant enjoyment of health depends. Some medical writers have considered one, others two, three, and even four meals a day necessary. But it may be laid down as an incontestable rule, that the number of meals should be regulated by the degrees of exhaustion, and diurnal habits of life to

which every individual is subjected. In general, three frugal meals, in the course of the day, seem the most desirable, and the best adapted to the wants and constitution of the human frame, while, at the same time, this number is best suited to the powers of the digestive organs. In the adoption of this salutary rule of diet, Fashion, all-powerful as she is, has at length, on most occasions, yielded to Reason.

The periods at which meals should be taken, and the intervals that should elapse between them, deserve attention. The practice which leaves the great bulk of the day without a meal, and then crowds two or three together, is manifestly bad, as it produces in the body a state of exhaustion and fatigue, which strongly tends to enfeeble the powers of digestion. To confirm and preserve health, whatever may be the number of meals taken, they should be eaten at regular times and stated periods; and they should be regulated by the strength or debility of the stomach, and the quantity and quality of the food taken, or to be taken, at the preceding or following meal. The extremes of too long fasting, and too frequent repletion, should be carefully avoided; for the languor of inanition and the fever of repletion, are equally injurious to the healthy state of the stomach: its muscular fibres are debilitated by excess; while a collapsed state of the organ occasions its loss of tone and energy, and superinduces constitutional weakness. And it should be remembered, that one meal should be duly digested before the introduction of another into the stomach. They who have weak stomachs will, as Dr. Darwin remarks, be able to digest more food, if they take their meals at regular hours, because they have both the stimulus of the aliment they take, and the periodical habit, to assist their digestion.

BREAKFAST.

Breakfast is the first meal taken in the morning. This meal is of considerable importance, as many hours

have passed since the stomach was supplied with food; and because the food then taken is that which is to give strength to the system for the most active part of the day. Its time, its materials, and accompaniments, are therefore worthy of being well adjusted; although from the endless varieties of habits, constitutions, and employments, no fixed rules on any of these particulars can be given. During sleep, the whole of the food taken the night before has probably been digested; and consequently in healthy persons it is generally found that the appetite is for the most part, peculiarly keen in the morning, in consequence, as well of the emptiness of the stomach, as from its digestive powers having been refreshed by rest, and in this manner prepared to resume with vigour their functions; but, in general, it is proper to interpose some time between rising and taking breakfast; though many feel so much inanition and feebleness, that they are unfit for any of the duties of the day until they have taken some food. In regard to this, every one must decide for himself.

The quality of the food to be eaten at breakfast is to be regulated by the exercise and labour to be taken, and by the time that is to elapse before dinner. The physician would be much inclined to interdict luncheons; and, therefore, to recommend a considerable proportion of solid food at breakfast. Cold mutton, or beef, rice, or eggs, may be taken at breakfast. Copious breakfasts, however, are apt to be heavy to many stomachs, and to occasion heart-burn, especially when a great deal of liquid has been taken along with them; but this does not militate against a proper quantity of diluting drink being taken at breakfast. The expenditure of fluid by insensible perspiration, which has taken place during the night, with the greater acrimony of all the secretions in the morning, point out the propriety of a considerable quantity of diluting fluid at the breakfast meal; and the choice of this fluid must be left, in general, to each person's expe-

rience of what agrees best with him. Weak tea agrees well with most people; but with many, it occasions heart-burn and acidity; perhaps the fault may not be in the tea, but in the quantity of new bread, or of butter, taken along with it. Trials must be made, by omitting one or more of the articles taken, till it be ascertained which of them is in fault. If tea, or coffee, is found to disagree, milk or gruel may be substituted.

LUNCHEON.

By luncheon is generally meant that food taken during the morning between breakfast and dinner. Generally speaking, when the former meal has been sufficiently hearty, and composed partly of solid aliment, the *luncheon* will be unnecessary; and the habit of partaking of it should, as much as possible, be avoided. But to a healthy person, whose digestion is good, who is accustomed to a great deal of active exercise, and who, in the early part of the morning, has taken no very substantial or copious repast, the *luncheon* will probably be a matter of indispensable necessity. It should, however, consist of a very moderate quantity of light and easily digested food. Many of those, however, who take luncheon, find it to spoil the digestion of their dinner; much more will this be experienced by the dyspeptic patient, who needs his stomach to be undisturbed during the digestion of his regular meals, and who should not exhaust its powers by calling them too frequently into action. If additional food be taken before the former portions are assimilated, the process of digestion will be disturbed; and however plausible may be the maxim, that the stomach will be best managed, and the strength improved, by taking small quantities of food very frequently, yet this is not found to be true; in fact, the invalid thrives much better by regular meals, at proper intervals, than by that constant throwing in of a supply as fast as a morbid craving calls for it, or as a false theory says, it should be taken.

DINNER.

Dinner in this country is the principal meal of the day, and is, in general, taken at the close of the morning, or during the first hours of the afternoon. This period for dining appears to be well chosen for the active classes of society more especially. Several hours having elapsed since the morning meal, the stomach may be expected to have disposed of the food then taken, and to demand a new supply, while a sufficient period will elapse between dinner and the evening repast, to allow of uninterrupted and complete digestion. Dinner is, in general, composed of meat and vegetables, variously cooked, or of soups. Attention is seldom paid to the character of the food taken at this meal, or, to the proper rules of diet; and hence, it is at dinner that the greatest errors are generally committed, in regard to the quantity and quality of the food taken. Dinner should always consist of one dish of meat, plainly cooked. Variety of food, like too much seasoning, keeps up the appetite after the wants of the system are satisfied; and hence, the stomach is oppressed by too great a quantity of aliment, and digestion is impeded even to a greater extent than were the same amount to be eaten of a single dish. Let it be recollected, also, that dishes compounded of a number of ingredients, the natural qualities of which are completely disguised, by the refinements of cookery, are altogether unwholesome: many of them are little better than poisons. It is all-important that sufficient time should be allowed for this meal, in order that the food may be properly chewed, without which its digestion will be greatly retarded. In regard to the necessity of drinking at table, but little need be said. If the food be sufficiently plain and juicy, thirst will seldom be experienced; but when a desire to drink is experienced, a moderate draught of water will be proper. But no other liquor should be taken—water is the only natural diluent of our food, every other liquor im-

pedes its digestion. Hence, the custom in use among some people, of taking drams before dinner, for the purpose, as they allege, of whetting the appetite, is highly pernicious, and has quite a contrary tendency to that designed, as it relaxes the stomach, and consequently enfeebles it for the operations it has to perform. For the same reason, the practice of taking brandy or liquors with goose, pig, &c., is objectionable. Nor is the fashion of taking wine, or brandy and water, during dinner, less reprehensible. The use of bottled cider, porter, or beverage, during this meal, is also injurious, as it unnecessarily distends the stomach, and thus prevents its muscular contractions, at the very time when it is necessary they should be brought into action, and preserved in their full vigour. To say the least of all these vulgar errors in diet, they check the process of digestion, and paralyze the powers of the stomach. Coffee may, however, be safely and advantageously taken after dinner, as it accelerates the operations of the stomach, and assists digestion, provided it does not exceed a small cup or two, and is taken without sugar or milk.

SUPPER.

Supper is the meal taken late in the evening, or just before going to bed. As the powers of the body, and digestion among the rest, are diminished in their activity during sleep, it is an unsafe measure to load the stomach at bed-time with a large quantity of various kinds of food. When this is done, there is great distension, both from the load thrown in, and from flatulence; hence, the person is liable to be disturbed with restlessness, or nightmare, and frightful dreams. If tea has been taken in the early part of the evening, no food will be required until the next morning. When a sensation of hunger is felt, however, before bed-time, a slight and moderate repast only is allowable, such as an egg, or some preparation of milk, or oatmeal gruel, which last, however, is apt to become

sour on some stomachs. For dyspeptics, suppers and late hours are peculiarly unsuitable. Under no circumstance should food be taken for two or three hours before retiring to rest.

DRINKS.

We are warned by the appetite of thirst to take in a certain quantity of liquid to dilute our solid food, and to supply the waste of the fluids of the body, which are continually expended during the continuance of life. So urgent is this necessity, that we are able to bear hunger more quietly than thirst, and to live longer when deprived of food, than when deprived of drink. The quantity of drink required, will vary according to the season and climate, the mode of life, the nature of the food, and the peculiarity of each individual. When the body is exposed to a high degree of atmospherical temperature, a much greater quantity of drink is demanded, than when the atmosphere is temperate or cold. This arises from the stimulating effects of heat upon the system; but chiefly by the waste of the fluid portion of the blood, occasioned by the increased perspiration. For the same reasons, active exercise or labour augments the thirst. Salted, high-seasoned, and all stimulating food increase the demand for drink, by stimulating the lining membrane of the mouth, throat, and digestive organs, and increasing the viscosity and exciting properties of the blood. The same effects are produced by wine and ardent spirits. Dry food necessarily requires more dilution than that which is moist and juicy; and hence, the greater necessity of drinking, during meals principally composed of the former. In regard to the fluid best adapted for an ordinary drink, there can be no hesitation in stating, that it is water, and water alone—no other can answer so well as a diluent for our food, and for the preservation of that degree of fluidity in the blood, by which it is best adapted for the nourishment and support of the system. No fluid whatever can be used as a drink,

excepting in consequence of the water it contains; and in proportion to its freedom from foreign admixture, or any active ingredient, will it best answer the purposes of a diluent in the animal body. When the taste of man has not been vitiated by the customs of artificial life, his thirst can be satisfied only by pure water; and even under ordinary circumstances, when the sensation of thirst is intense, every other fluid is loathed. While pure water constitutes the best drink for habitual use—the addition to it occasionally of farinaceous substances, or of some of the vegetable acids, or rendering it slightly aromatic, by infusing into it the leaves of certain herbs, is not injurious, and, under certain circumstances, may be advisable.

The effects of simple fluids on the body vary considerably, according to their temperature, their volume, and the time when they are drank. Persons in good health, generally take a great portion of their drinks, especially at dinner, of the temperature of the atmosphere; but in weaker stomachs, the drinks may be required to be a little warmed, though it is seldom safe to take them habitually very hot; and far less is it proper to chill the energies of the stomach, by cold or iced drinks. The quantity of drink taken, is also of much consequence to good digestion; a large volume of fluid will prevent the food from being properly acted upon by the stomach; and if there be too little, the mass will be dry and hard. Different kinds of food require different quantities of liquid: animal food requires more than vegetable; roasted, more than boiled; and baked meat, more still than roasted. The time of drinking may be generally left to the individual. To load the stomach with drink before a meal, is unwise; but to drink more or less, during a meal, according to the nature of the food, assists digestion.

Toast-water, is water impregnated with the soluble part of toasted bread, it is perfectly wholesome, and agrees frequently with persons whose sto

machs do not relish pure water. Hard biscuit, reduced by fire to a coffee-colour, has been recommended as the best for making toast-water. It should be drank as soon as it has cooled, as it acquires an unpleasant flavour by keeping. Toast-water has a slightly nutritive quality, and may be allowed in all the feverish and other cases, where diluents are proper.

Capillare.—A syrup made from a decoction of the leaves of the maiden hair, *adiantum pedatum*, with the addition of sugar; when mixed with water, it forms an excellent and very pleasing drink to allay thirst in warm weather.

Artificial Mineral Waters.—The artificial mineral waters of the shops, with or without syrup, form a grateful and very wholesome drink in warm weather. They consist merely of water, surcharged with carbonic acid gas. Mineral waters should not be drank immediately before a meal, as the gas they contain, by unduly distending the stomach, may prevent the proper digestion of the food about to be taken, neither should they be drank immediately after eating.

Whey.—When milk is curdled by the addition of rennet, or spontaneously, it separates into two parts, the *curd*, or solid white portion, and the *whey*, or the thin watery portion, of a yellowish green colour, a pleasant sweetish taste, and retaining the flavour of the milk. Whey affords a bland, easily assimilated nourishment, increasing the secretions, and tending to produce a beneficial change in the fluids of the body. It contains a considerable amount of sugar, which renders it sufficiently nutritious. As a drink, whey, in point of salubrity, is inferior only to water; and it is, therefore, admirably adapted to allay the thirst of labourers in hot weather.

Buttermilk.—The fluid which remains in the churn after the butter is extracted from the milk, contains but little nutritious matter; but, in warm weather, it forms an excellent cooling drink, and, with bread, may con-

stitute a considerable part of the diet of children.

TEA.

Thea.—A plant of various species, which grows in China and Japan, of which great quantities of the dried leaves are imported annually from China. In many parts of Europe, and in America, the infusion of these leaves has become one of the necessities of life; and from its fragrant and agreeable properties, it is likely for ever to remain in universal estimation. The principal kinds of tea used in this country, are the green and bohea; of which there are three kinds of the first, and five of the second. The green tea is the most remarkable for its sleep-repelling properties. The bohea is that in most general use.

The properties of tea seem to be those of an astringent and narcotic; but like some other narcotics, in small quantity, its first effect is that of a very gentle stimulant, and certain kinds of it, when taken pretty strong, and near the usual time of going to rest, have the effect of keeping off sleep; but when weak, and taken moderately, and tempered with cream and sugar, it acts merely as a grateful diluent, and produces a slight exhilaration.

On its first introduction, and for more than fifty years afterwards, tea was violently assailed, and many frightful disorders were attributed to its use; it was said to produce indigestion, lassitude, melancholy, and a long train of nervous complaints. When drank very strong, or in excess, by the sedentary and inactive, there can be no doubt of its injurious effects upon the stomach, and through it upon the system generally. The green and high-flavoured teas are those which are the least wholesome. Tea should not be taken too soon after dinner, as it may interfere with digestion from its distending the stomach, and from its astringent and narcotic properties; but when taken three or four hours after the principal meal, it assists the latter stages of digestion, and promotes the insensi-

ble perspiration; more, however, from the warmth of the water in which it is infused, than from any beneficial effects of the tea itself. A strong infusion of green tea especially, under such circumstances, would rather impede than promote digestion. There are some peculiarities of constitution which render the use of tea very hurtful; but the same is true of many substances, used both in diet and medicine. They who are fixed down to a sedentary employment, who must work at night, and who take tea to keep themselves awake; who, from the want of exercise, are unable properly to digest animal food, will, no doubt, exhibit many symptoms of indigestion, and that feeble tremulousness, known by the epithet *nervous*, from its use; but the tea ought not to bear all the blame of producing those disorders, which are more justly to be ascribed to the confinement and inactivity of the patient. Nevertheless, that under such circumstances, the use of tea is absolutely injurious, and aids in the destruction of health, there can be little doubt. We do not object to a cup or two of tea of a moderate strength, as an evening repast for the mechanic; but we must be allowed to say, that for breakfast his health will be better supported by something more substantial and nourishing than the ordinary meal of bread and tea, or bread and coffee.

The following rules, respecting the use of tea, will be found useful. 1. Carefully avoid the high-priced and high-flavoured teas, more especially if *green*, which generally owe their flavour to pernicious ingredients, and abound most with those active principles, from whence the noxious effects of the article arise. 2. Take with it, at all times, a good proportion of milk, and some sugar, as correctives to any possible noxious qualities present. 3. Let the quantity of tea used at each infusion be very moderate. 4. Make the infusion properly, with water, soft, and otherwise of a good quality, and in a boiling state. 5. Take less tea in the morning, than in the evening.

COFFEE.

The seeds of the *coffea arabica*.—The seeds when torried, ground and infused in boiling water, afford the well known beverage, the use of which, at breakfast, has become almost universal among the more opulent classes of society throughout the United States, and in our principal cities, among almost every class. The infusion of coffee acts as a stimulant upon the stomach, the heart and the nervous system, increasing the circulation of the blood, augmenting the heat of the skin, and exhilarating the mind; these, its immediate effects, are followed, however, by an equal degree of depression in the functions of those several organs: the excitement and subsequent depression being in proportion always to the strength of the infusion, and the quantity drunk. Hence, coffee bears a strong analogy, in its effects upon the system, to wine, ardent spirits, and opium; from the latter, its effects, however, are very different in degree. Coffee, therefore, when drunk very strong, or indulged in to excess, is unquestionably injurious; it seldom fails to disorder the stomach, impair its digestive powers, and in delicate habits it often occasions watchfulness, tremors, head-ache, and many of those complaints, vaguely denominated nervous. To the dyspeptic and sedentary especially, it forms a very improper article of diet. When taken weak, and with plenty of cream or milk, and sugar, it may however be indulged in to the extent of a few cups a day, by persons in health, and who lead active lives, without much inconvenience; and when drunk soon after dinner, in the quantity of about a cupful of the plain infusion, it is said to assist digestion. Coffee should never be taken late in the evening, in consequence of its tendency to prevent sleep.

CHOCOLATE.

The nut of the *theobroma cacao*, divested of its envelop, and well triturated, forms, when boiled in water, or in

milk, a rich nutritious diet, well adapted for robust and labouring persons. With the stomach of the feeble and sedentary, it is apt, however, to disagree, unless made very weak. For such, however, the shells of the cacao-nut, boiled in water, with the addition of sugar and milk, will afford a very pleasant and excellent article of diet. During the winter season, chocolate, of a good quality, would form, undoubtedly, for the generality of persons, a far preferable breakfast to either coffee or tea, both in respect to the nourishment which it communicates to the system, and the stimulus or temporary strength afforded by it; thereby enabling the individual to perform with ease a greater amount of labour. The common kinds of chocolate sold in the stores are too often sophisticated by the addition of flour and suet, and should, therefore, be avoided as unwholesome.

SPRUCE BEER.

A drink made by fermenting molasses, diluted with water, with the addition of yeast or porter, and the essence of spruce. Before the fermentation is completed, it is bottled. Spruce beer can scarcely be considered as intoxicating; the fermentation being never allowed to go on so far as to produce any great amount of alcohol. It is not, however, a suitable drink for persons with weak digestive powers. The carbonic acid gas with which it is so copiously impregnated, and which gives to it its foaming and brisk appearance, unduly distends the stomach, and impedes digestion; while the saccharine matter of the beer becomes quickly acid, producing pain and irritation.

CIDER.

The fermented juice of apples. As a habitual drink, cider is not to be recommended. When new, or imperfectly fermented, it is apt to turn acid upon the stomach, and to occasion flatulency and colic. When rendered more stimulating by a more complete fermentation, boiling and age, it pro-

duces the same injurious effects as the weaker wines, while it intoxicates much more rapidly. The weakest kinds of cider contain 5.21 per cent. of alcohol, and the stronger nearly 10. Whether it be from the acids contained in cider, or from some unknown cause, we can not say; but it is certain that few drinks used habitually, are so apt to disorder the stomach and bowels. Cider is sometimes rendered pernicious by impregnations of lead, and most generally by a considerable amount of ardent spirits being added to it, to increase its strength and prevent it from spoiling by age.

MALT LIQUORS.

Malt liquors, under which title we include all kinds of beer, porter and ale, produce, when taken in excess, the worst species of drunkenness; as, in addition to the intoxicating principle, some noxious ingredients are too generally added to them, for the purpose of preserving them and to give to them their bitter flavour. The hop of these fluids is highly narcotic, and brewers often add other substances, to heighten its effect, such as hyoscyamus, opium, belladonna, cocculus Indicus, lauro-cerasus, &c. Malt liquors, therefore, in whatever quantity they are used, act in two ways upon the body, partly by the alcohol they contain, and partly by the narcotic principle. In addition to this, the fermentation which they undergo is much less perfect than that of spirits or wine. After being swallowed, this process is continued in the stomach, by which fixed air is copiously liberated, and the digestion of delicate stomachs materially impaired. Cider, spruce, ginger, and table beers, also, in consequence of their imperfect fermentation, often produce the same bad effects, long after their first briskness has vanished.

Persons addicted to the use of malt liquors increase enormously in bulk. They become loaded with fat; their chin gets double or triple, the eye prominent, and the whole face bloated and stupid. Their circulation is clogged,

while the pulse feels like a cord, and is full and labouring, but not quick. During sleep, the breathing is stertorous. Every thing indicates an excess of blood; and when a pound or two is taken away, immense relief is obtained. The blood, in such cases, is more dark and sily than in other persons. In seven cases out of ten, they who indulge to excess in the use of malt liquors, die of apoplexy or palsy. If they escape this hazard, swelled liver, or dropsy, carries them off. The abdomen seldom loses its prominency, but the lower extremities get ultimately emaciated. Profuse bleedings frequently ensue from the nose, and save life, by emptying the blood-vessels of the brain.

The effects of malt liquors on the body, if not so immediately rapid as those of ardent spirits, are more stupifying, more lasting, and less easily removed. The latter are particularly prone to produce levity and mirth, but the first have a stunning influence upon the brain, and in a short time render dull and sluggish the gayest disposition. They also produce sickness and vomiting, more readily than either spirits or wine.

Both wine and malt liquors have a greater tendency to swell the body than ardent spirits. They form blood with greater rapidity, and are altogether more nourishing. The most dreadful effects, upon the whole, are brought on by spirits, but intemperance in the use of malt liquors is the most speedily fatal. The former break down the bodies by degrees; the latter destroy life by causing some instantaneous apoplexy, or rapid inflammation.

WINE.

Wine is the produce of the fermentation of the juice of the grape, but the term is frequently applied to the product of the fermentation of any sub-acid fruit. The grape is remarkable for containing within itself all the substances necessary for the production of wine; but the juices of other fruits must have the addition of sugar and

other ingredients, and in the proportions and management of these additions, consists the art of making home wines. Another circumstance in which the juice of the grape differs from other vegetable juices, is its containing a large proportion of tartar; while the others have more of the malic acid, or that acid which abounds in apples; and hence, many of the wines of this country partake of the properties of cider, and are apt to become sour. The characteristic ingredient of all wines is alcohol, or spirit of wine; on this depend their stimulating properties, and the quantity and state of combination in which it exists in wines, are the most interesting points for the consideration of the physician. Under the article alcohol, we shall mention its highly stimulating and intoxicating properties; and when we know by the experiments of modern chemistry, that many wines in common use contain from a fourth to a fifth of their bulk of alcohol, we can easily understand the stimulating and intoxicating effects produced by such wines.

But, besides the alcohol naturally contained in wines, the stronger wines of Spain and Portugal are rendered marketable in this country, by the addition of brandy; and it is to this additional spirit, in a free state, as chemists call it, as well as to the combined alcohol, that the injurious effects of these wines are to be ascribed.

There is a distinction of wines, arising from their colour, into white and red. This colour is derived not from the juice, but from the husk of the grapes. It is, in general, highly astringent, and abounds most in the red wines. Notwithstanding the quantity of astringent matter in the red wines is very small, yet delicate stomachs are much affected by it.

The flavour peculiar to different wines, depends on some very delicate principle, which chemists have not been able to detect; in some wines it produces a remarkable effect on the nervous system, as in Burgundy; the excitement produced by this wine being

very peculiar, and not at all in proportion to the alcohol contained in it. Some wines have an artificial flavour imparted to them, by the introduction of foreign ingredients, as almonds and turpentine.

Wines also contain a small portion of acid, but so very small, in general, as to be in all likelihood incapable of causing any bad effects to those who drink them. Acidity of stomach may unquestionably follow the drinking of wine, but from other causes than the mere portion of uncombined acid which they contain. This same acid has also been blamed, with equal injustice, for giving rise to attacks of gout. Claret has been particularly suspected of this bad tendency; but when a person is predisposed to gout, excess of any kind, either in diet, exercise, or wine, will produce the paroxysm.

The general effect of wine on the healthy body, when taken in moderation, is to excite for a time the powers of life, to assist digestion, to quicken the circulation, to exhilarate the spirits, and to increase the mental energies. But at the same time, it must be recollected, that these exhilarating effects are of the most insidious nature, and in place of remaining permanently, or allowing the actions of the several organs to sink, when the stimulus is withdrawn, to their healthy standard, they are succeeded by a depression of the vital energies, in direct proportion to the extent of the preceding excitement. When the use of wine, therefore, is habitually indulged in, or when carried beyond moderation, it perverts the faculties, degrades the rational powers, creates a morbid craving for the repetition of the indulgence, and lays the foundation for a long train of sufferings and diseases.

The wine-bibber has usually an ominous rotundity of face, and, not unfrequently, of corporation. His nose is well studded over with carbuncles of the claret complexion; and the red of his cheeks resembles very closely the hue of that wine. The drunkard from ardent spirits, is apt to be a poor, miserable, emaciated figure, broken in mind and in fortune; but the votary of the

juice of the grape may usually boast the "paunch well-lined with capon," and calls to recollection the bluff figure of Sir John Falstaff over his potations of sack.

Burgundy.—A wine classed among those which are called dry and light. It is possessed of stimulating properties greater than can be explained from the proportion of alcohol which it contains, that being only about $11\frac{1}{2}$ per cent. Burgundy is, therefore, thought to hold dissolved some unknown principle of great activity. A few glasses of this wine will induce head-ache and heat of the system, with flushed face, and hardness of the pulse. In many constitutions this excitement may be very unsafe, especially in sanguine constitutions, and where there is any degree of over-fullness of the system.

Claret.—A wine brought from Bordeaux, of a delicate flavour, and distinguished by a perceptible combination of the acid with the resinous flavour. It is less heating, and more aperient than other wines. When taken in excess, claret produces acidity and indigestion, often rather from the quantity taken, and the state of the stomach, than from the quality of the liquor. But the clarets of wine-merchants are often very substantial wines, compounded in various ways for the domestic market. They are thus often mixed with hermitage, and with raspberry brandy; and if procured through doubtful channels, as we find them in the hands of the ordinary dealers in wine, they are too frequently acescent, and apparently composed of some claret, mixed with faded port, or some other spoiled wines, or of cider with some colouring and astringent materials; and often they are compounded of still more pernicious ingredients. Claret contains from 13 to 17.11 per cent. of alcohol.

Champaigne.—A species of wine, containing a large amount of carbonic acid gas, which gives to it its sparkling and effervescing appearance. It contains between 11 and 13 per cent. of alcohol. Champaigne wine produces speedy intoxication.

Lisbon wine contains nearly 19 per cent. of alcohol, hence its unfitness for a common drink.

Madeira wine is still stronger than Lisbon, containing nearly $24\frac{1}{2}$ per cent. of alcohol.

Port.—A wine made in Portugal, from grapes cultivated in the vineyards along the shore of the Duero. It has received its name from being exported principally from Oporto. Port wine possesses considerable astringency, and a strong odour and flavour of brandy; a quantity of the latter being invariably added to the wine, previous to its exportation. Port wine is very stimulating, and intoxicates quickly. It contains nearly 26 per cent. of alcohol. Its effects on health are similar to those of the strong wines, generally. The port wine in common use in this country, is an artificial compound of other wines, brandy, logwood, and alum, and is extremely pernicious in its effects upon the stomach. The fact is, that the amount of wine annually exported from Oporto, is barely sufficient for the supply of England and her dependencies; but few casks of it, in its original state, at least, ever find their way to this country.

Sherry.—A Spanish wine, of that kind which has been termed dry, manufactured at a place called Xeres, in Andalusia; hence the name of the wine, adopting in our orthography *Sh* for the Spanish *X*. This wine has sometimes a peculiar nutty flavour, which is caused by infusing in it bitter almonds. Sherry contains 19.81 per cent. of alcohol.

ALCOHOL.

Alcohol, in strictness, signifies the pure spirit obtained by distillation and subsequent rectifying, from liquids that have undergone the vinous fermentation. But the term is commonly applied to the spirit, even when imperfectly freed from water, and other foreign matter. Alcohol is obtained in the greatest quantity from the wines of warm countries, some of which yield a third of brandy. The stimulating

and intoxicating properties of wines, and all fermented liquors, depend on the alcohol they contain. A very curious and interesting table has been constructed by Mr. Brande and other chemists of Europe, showing the quantity of pure alcohol contained in a variety of wines and other intoxicating liquors, and by which it is shown, that when an individual drinks a bottle of port, or strong Madeira, he introduces into his stomach about one pint of ardent spirit, of the ordinary strength of the purest brandy, or gin; and even if he drink a pint of currant wine, he will swallow half a pint of ardent spirit, of the strength of that generally met with in the stores.

Alcohol differs slightly in some of its properties, according to the substance from which it is procured. When obtained from an infusion of malt, without rectification, it constitutes *whiskey*; when from sugar, *rum*; when from an infusion of rice, *arrack*; and when it is distilled from wine, it constitutes the *brandy* of commerce. *Gin* is alcohol flavoured with the essential oil of juniper. Other intoxicating drinks are obtained by distillation from peaches, apples, Indian corn, potatoes, the fermented milk of animals, &c.; as ordinarily drunk, ardent spirits contain, besides other foreign ingredients, 50 per cent. of water.

ARDENT SPIRITS.

Ardent spirits is a general name for the spirituous product of distillation, from various vegetable substances. The principal of these are brandy, rum, gin, and whiskey, obtained respectively from wine, the juice of peaches and apples, sugar, barley, rye, Indian corn, juniper berries, &c.

Ardent spirits, of every description, are in their nature and ordinary effects, extremely *unfriendly* to the human constitution; and the art of distillation is beyond all doubt, the most fatal discovery, in respect to the health of the community, which the ingenuity of man ever devised.

Ardent spirits should never be taken

in any quantity by those who are desirous of preserving good health, enjoying the full vigour of their systems, and prolonging their lives. When taken as a drink, they stimulate the stomach and neighbouring viscera, as well as the heart and brain, to an excessive and unnatural action, impair the appetite, impede digestion, and lay the foundation of serious disease in the most important organs. These effects are as certainly produced by the frequent use of spirits diluted with water, as when they are taken pure; hence, weak brandy and water is a very exceptionable beverage for common use, notwithstanding its being frequently recommended by some medical men, under the erroneous impression that it affords a beneficial stimulus to the stomach.

The habitual use of ardent spirits predisposes the system to the attack of every form of acute disease; and excites diseases in persons predisposed to them from other causes. This has been remarked in all the yellow fevers, and other epidemics, which have visited the cities of the United States. Hard drinkers seldom escape, and rarely recover from them.

The following diseases are the usual consequences of the habitual use of ardent spirits, viz: slow inflammation of the stomach, indicated by a decay of appetite, nausea, and sickness, a puking of bile, or a discharge in the morning, of a frothy and viscid phlegm by hawking, fetid breath, frequent and disgusting belchings; enlargement and disorganization of the liver; jaundice, and dropsy of the belly and limbs, and, finally, of every cavity of the body; chronic inflammation of the windpipe and lungs, marked by hoarseness, and a husky cough, which often terminates in consumption, and sometimes in more acute and fatal diseases of the lungs; diabetes, that is, a frequent and copious discharge of pale, or sweetish urine; redness and eruptions on different parts of the body; they generally begin on the nose, and, after gradually extend-

ing all over the face, sometimes descend to the limbs, in the form of leprosy. In persons who have occasionally survived these effects of ardent spirits on the skin, the face, after a while, becomes bloated, and its redness is succeeded by a death-like paleness. Epilepsy; gout, in all its various forms; colic; palsy, and apoplexy; and lastly, delirium or madness, are also frequently induced by the habitual use of ardent spirits.

Most of the diseases which have been enumerated, are of a mortal nature. They are more certainly induced, and terminate more speedily in death, when spirits are taken in such quantities, and at such times, as to produce frequent intoxication; but it may serve to remove an error, with which some intemperate people console themselves, to remark, that ardent spirits often bring on fatal diseases without ever producing drunkenness. Many persons are every year destroyed by ardent spirits, who were never completely intoxicated during the whole course of their lives. The solitary instances of longevity, which are now and then met with in hard drinkers, no more disprove the deadly effects of ardent spirits, than the solitary instances of recoveries from apparent death by drowning, prove, that there is no danger to life when a human body lies an hour or two under water.

Not less destructive are the effects of ardent spirits upon the human mind. They impair the memory, debilitate the understanding, and pervert the moral faculties. They produce not only falsehood, but fraud, theft, uncleanness, and murder. Like the demoniac, mentioned in the New Testament, their name is "Legion;" for they convey into the soul a host of vices and of crimes.

Certain occasions and circumstances are supposed to render the use of ardent spirits necessary. The arguments in favour of their use in such cases, are, however, founded in error. In each of them, ardent spirits, instead of

affording strength to the body, increase the evils they are intended to avert or to relieve.

They are said to be necessary in very cold weather. This is very far from being true; for the temporary warmth they produce, is always succeeded by a greater disposition in the body to be affected by cold; and by weakening the energies of the system, they render it more susceptible to a trifling decrease of temperature. Persons habitually addicted to the use of ardent spirits, even such as are not, strictly speaking, drunkards, are known to be much more liable to suffer from the effects of cold, than they who confine themselves to water alone.

Ardent spirits are said to be necessary in very warm weather. Experience, however, proves that they increase, instead of lessening the effects of heat upon the body, and thereby dispose to diseases of all kinds. Even in the warm climate of the West Indies, Dr. Bell asserts this to be true. "Rum," says that author, "whether used habitually, moderately, or in excessive quantities, in the West Indies, always diminishes the strength of the body, and renders men more susceptible of disease, and unfit for any service in which vigour or activity is required." And the same statement is made by nearly every subsequent writer who has treated of the diseases of warm climates.

Nor do ardent spirits lessen the effects of hard labour upon the body. Look at the horse, with every muscle of his body swelled from morning till night, in the plough, or team; does he make signs for a draught of toddy, or a glass of spirits, to enable him to cleave the ground, or to climb a hill? No. He requires nothing but cool water, and substantial food; and the same is equally true in regard to man. There is no nourishment in ardent spirits; they communicate no support to the system. The fictitious strength they produce in labour, is of a transient nature, and is always followed by

an augmented degree of weakness and fatigue.

Ardent spirits are taken by many immediately before a meal, to create an appetite, and improve digestion; but, instead of strengthening the stomach, and promoting the digestion of the food, ardent spirits, whether taken before or during a meal, produce invariably an injurious impression upon the digestive organs, and retard the proper solution and change of the aliment which is eaten.

Brandy.—An ardent spirit obtained by distillation from wine. Brandy contains nearly $59\frac{1}{2}$ per cent. of pure alcohol.

Cherry brandy.—A mixture of brandy, or rum, with the juice of cherries—by some, it is called *cherry bounce*, and when sweetened and spiced, it constitutes *cherry cordial*. Its use, as a drink, is attended with even more pernicious effects than plain brandy, rum, or spirits. It is often made use of by females as a cordial, and besides destroying the health of their digestive organs, too often has led to habits of confirmed drunkenness.

Rum.—An ardent spirit obtained by distillation from the fermented juice of the sugar-cane. Rum contains nearly 54 per cent. of pure alcohol.

Gin.—An ardent spirit obtained by distillation from fermented grain, with the addition of juniper-berries. It contains upwards of $51\frac{1}{2}$ per cent. of pure alcohol.

Whiskey.—An ardent spirit obtained by distillation from fermented grain, and the juice of apples and other fruits. It contains ordinarily about the same amount of alcohol as gin. Genuine Scotch whiskey contains, however, $54\frac{1}{2}$ per cent., and Irish whiskey nearly 54 per cent. of alcohol.

Punch.—Notwithstanding the general belief that punch is an innocent drink, we know of few the use of which is more injurious to the stomach. Independent of its stimulating and intoxicating properties from the ardent spirit which it contains, the acid and

sugar produce effects the more pernicious, in proportion to the extent to which the stomach has been weakened by previous excesses. After a night spent in punch drinking, a disordered condition of the digestive organs is more generally experienced, and to a greater extent, than after a debauch with any other intoxicating drink. To the sedentary and to dyspeptics, generally, punch will prove a most dangerous beverage.

Cordials, or *liqueurs*, as they are termed by the French, are formed of distilled spirits, with the addition of sugar or syrup, and some vegetable aromatic, as the oil of cloves, cinnamon, roses, anise, and the like, or they are flavoured by the addition of bitter almonds, bay leaves, peach kernels, and other articles containing a small quantity of prussic acid. When drank in moderation, they are apt to disorder the stomach, as well by their stimulating effects, as by the rapidity with which they turn sour after being taken; used habitually, or drank to excess, they produce all the mischief which follows the use of ardent spirits. They have very properly been styled by a witty writer, 'disguised poisons.'

INTEMPERANCE.

'Living fast,' is a metaphorical phrase which, more accurately perhaps than is generally imagined, expresses a literal fact. Whatever hurries the action of the corporeal functions, must tend to abridge the period of their probable duration. Extraordinary longevity has seldom been known to occur, excepting in persons whose existence has been tranquil, and their vital energies seldom excited, either by physical or moral agents, beyond the healthy medium.

But if intemperance curtailed merely the number of our days, many would have perhaps comparatively little reason to find fault with its effects. The idea of "a short life and a merry one," is plausible enough, if it could be realized. But, unfortunately, what shortens existence, is calculated also to make it

melancholy and miserable. There is no process by which we can *distil* life, so as to separate from it all foul or heterogeneous matter, and leave nothing behind but drops of refined and perfect enjoyment and happiness.

It is seldom that debauchery breaks at once the thread of life. There occurs, for the most part, a wearisome and painful interval between the first loss of a capacity for enjoying life, and the period of its ultimate and entire extinction. This circumstance, it is to be presumed, is overlooked by those persons who, with a prodigality more extravagant than that of Cleopatra, dissolve the pearl of health in the goblet of intemperance.

The slope towards the grave is found, by these victims of indiscretion, to be no easy descent. The scene is darkened long before the curtain falls. Having exhausted all that is fine and delightful in the cup of life; they are obliged to swallow afterwards the bitter dregs. Death is the last, but not the worst result of intemperance. Punishment, in some instances, treads almost instantly upon the heels of transgression; at others, it follows with a more tardy, although with an equally certain step, the commission of moral irregularity. During the period of a long protracted career of excess, the malignant power of intemperate enjoyment, slow and insidious in its operation, is gnawing incessantly at the root, and often without spoiling the bloom, or seeming to impair the vigour of the frame, is secretly but surely hastening the period of its inevitable destruction. There is no imprudence with regard to health, that does not tell: and they are not unfrequently found to suffer in the event most essentially, who do not appear to suffer immediately from every individual act of indiscretion. The work of decay is, in such instances, constantly going on, although it never loudly indicates its advance by any forcible impression upon the senses.

The distinction, although incalculably important, is not sufficiently recognized betwixt stimulation and nutri

tion; repairing the expenditure of the fuel by a supply of substantial matter, and urging unreasonably, or to an inordinate degree, the violence of the heat and the brilliancy of the flame. The strongest liquors are the most weakening, and in proportion to the power which the draught itself possesses, is the amount of healthful vigour which it deducts from the person into whose stomach it is habitually received. In a state of ordinary health, and in many cases of disease, a generous diet may be safely and even advantageously recommended. But in diet, the generous ought to be carefully distinguished from the stimulating, which latter is, unfortunately, most frequently used to denominate *good* living. The indigent wretch, whose scanty food is hardly sufficient to supply the materials of existence, and the no less wretched debauchee, whose luxurious indulgence daily accelerates the period of its destruction, may both be said, with equal propriety, to *live hard*. Hilarity is not health, more especially when it has been roused by artificial means. The fire of intemperance often illuminates at the very time it is consuming its victim, and it is not until after the blaze of the electric coruscation that its depredations are exposed.

Stimuli sometimes produce an artificial genius, as well as vivacity. They lift a man's intellectual faculties, as well as his feelings of enjoyment for a moment, above their ordinary level; and if by the same means they could be kept for any length of time in that state of exaltation, it might constitute something like a specious apology for having recourse to them. But unfortunately the excitement of the system can in no instance be urged above its accustomed and natural pitch, without this being succeeded by a correspondent degree of depression. Like the fabulous stone of Sisyphus, it invariably begins to fall as soon as it has reached the summit, and the rapidity of its descent is almost invariably in proportion to the degree of its previous elevation. Genius, in this manner,

forcibly raised, may be compared to those fire-works which, after having made a brilliant figure in the sky for a very short time, fall to the ground, and expose a miserable fragment, as the only relic of their preceding splendour.

DRUNKENNESS.

The baneful effects produced upon the constitution by the habitual and excessive use of intoxicating drinks are very fully detailed in the articles, *Ardent spirits, malt liquors, and wine*. These, one should suppose, would be sufficient to deter all from indulging in the use of such drinks, or, at least, that the destruction of the moral, physical and intellectual faculties of man, and the beastly excesses into which he is led by intoxication, would be a sufficient warning to prevent every rational being from falling into so degrading a condition. That infatuation which induces so many, for a momentary and insufficient gratification, to risk the destruction of character, credit, and happiness and to entail upon themselves and families the extreme of wretchedness and misery, can be viewed as little else than a species of insanity; to control the effects of which is unquestionably a legitimate subject for legislative interference. Habits of intoxication very often creep on almost imperceptibly, and the individual is lost even before he has passed the limits of moderation. The elevation of spirits and excited state of the heart and other organs, produced by the stimulation of alcohol, indulged in to a certain extent, are followed by a corresponding depression and langour, to relieve which, a renewal of stimulation is demanded, until the very cravings and appetites of the system are enlisted in favour of excess. To avoid drunkenness, therefore, the only certain means is to abstain entirely from drinks of an intoxicating quality, and to seek the pleasurable stimulation, to induce which they are always, in the first instance, resorted to, in wholesome food, fresh air and exercise, cheerful company, the

offices of benevolence, and such other physical and moral species of excitement as are friendly to the health of the system, and to the vigour and serenity of the mind, and are never followed by undue depression, nor by regret. Various means have been proposed to wean an individual from habits of drunkenness, particularly by adding to the liquor, drunk by him, certain nauseating or disgusting drugs; but little good has, however, been in this manner effected—moral means, particularly the influence of society, as soon as this can be enlisted in favour of entire abstinence from the use of all intoxicating drinks, are calculated to produce much more decided, extensive and permanent effects in preventing drunkenness, and reclaiming those already addicted to it.

A fit of intoxication, closely resembles that of incipient apoplexy, or palsy. The drunkard staggers, his tongue loses its power of speech, he stammers, sees double, or objects appear to him to revolve, or move in a circular direction. His feelings and perceptions are blunted, and at length a state of insensibility and fatuity is produced. All these symptoms result from an over-fullness of blood in the vessels of the brain. If intoxication is still more complete, there is no perceptible difference between it and genuine apoplexy. We have the same lividity and bloatedness of countenance, the same deep comatose sleep, the same complete insensibility, the same stretor of breathing, the same fixedness of the eyes, and dilatation of the pupils, and the same slowness and fullness of the pulse. A person in this state, should be carried, without delay, into a room of moderate temperature, and placed in bed, with his head raised. Care should be taken to remove all ligatures from about his neck and limbs, and to prevent his neck from becoming twisted, or his breathing suspended, by any covering on the face. Cold water may be applied to his head, and if he is desirous of drinking, the simplest beverages, as tea or toast and water, should be allowed him. It is

said that a drachm or two of a solution of the acetate of ammonia will almost immediately remove all the phenomena of intoxication.

SECTION V.

CLEANLINESS.

AMONG the means which tend most to the preservation of health, and to the promotion of comfortable feelings, is cleanliness. The neglect of it is in fact the immediate cause of some of the most disgusting and fatal diseases to which the human body is liable. Personal cleanliness consists in the careful removal of every impurity from the surface of the body, whether generated by itself, and attached to the clothing in immediate contact with it, or contracted from the air and other matters with which the body is accidentally or constantly surrounded. Allowing impurities to accumulate upon the surface not only gives rise to a disgusting effluvia, by which the air the individual breathes is contaminated, but, besides occasioning various eruptive diseases of the skin, it prevents the due performance of the functions of the latter, and in this manner causes disorder of those internal organs which most readily sympathize with it. None of the bodily sympathies are more intimate than that which exists between the stomach and the skin, or between the latter and the alimentary canal, the lungs, the liver, and the kidneys; whatever, therefore, suspends or impedes the functions of the surface, whether cold or filth, a derangement to a greater or less extent of the internal organs invariably results. The skin is not to be considered merely as the covering of the body to defend it from the influence of external agents, but as one of our most important organs, without the continued health and activity of which there can neither be health, comfort, nor long life. By the action of the numerous blood-vessels of the skin, there is removed from out the system,

in the form of an insensible perspiration, an immense amount of excrementitious matter, the retention of which would be productive of uncomfortable feelings or disease. The skin is likewise the seat of the *sense* of feeling; upon it external impressions are first made, and from it conveyed to the brain and other internal parts. We can easily comprehend, therefore, in what manner personal cleanliness, by allowing the functions of the skin to be carried on with perfect regularity and freedom, contributes to our health and comfort. The means of preserving the purity of the skin is frequent ablutions with water, with the addition occasionally of soap and frictions. The ablution of the body should be frequent and general, and not confined simply to those parts that are exposed. Bathing or washing the entire surface in water of a proper temperature, and at short intervals, would sensibly increase the strength, health, and pleasurable feelings of all, whatever may be their sex, age, or condition in life. Frequent change of clothing is equally necessary to the maintenance of personal cleanliness as frequent ablutions of the surface. When the matter exhaled in the form of perspiration from the skin is retained in contact with it by the clothing, it undergoes quickly a decomposition, and causes diseases of the skin; and by impeding its functions, as well as by contaminating the air we breathe, causes often fevers, and various diseases of a very malignant character. Domestic cleanliness is of scarcely less importance to the preservation of health than that of the person and clothing. From every apartment of our dwellings, as well as from the yards, cellars, vaults, and outhouses attached to them, should every species of filth, every thing which by its decomposition is liable to contaminate the air, be immediately removed, while all the other means for the preservation of domestic purity should be put in constant requisition. But the consequences that result from want of cleanliness are not confined to individuals or to families.

From the same baneful source a whole neighbourhood or community may become infected with disease of the most violent and deadly nature.

Hence the necessity of preventing all accumulations of filth and stagnant water in the streets, courts, and alleys of towns; hence the utility of draining marshes and improving and cultivating the surface of a country; and hence the unhealthiness of houses situated near sinks, privies, and docks, or rivers, the flat muddy shores of which are left bare by the receding tide. If cleanliness be essential to the preservation of health, it is no less so to the comfort and ease of the sick. Unless their debility be very great, and unless it be productive of much pain and suffering to move them, the bed and body linen of the sick should be kept very clean, and frequently changed; their apartment should be cleaned and well aired, and all offensive discharges should be very carefully and speedily removed.

BATHING.

The preservation of the skin constantly free from every species of impurity, and in a condition best adapted to the performance of its important functions, being one of the most certain means for preserving the health and promoting the comfort of the system generally; the means for effecting this important end press themselves forcibly upon the attention of all classes of society. In no manner can strict personal cleanliness be so effectually maintained as by frequent bathing. The indifference exhibited by the inhabitants of this country in respect to bathing, whether considered as a luxury, or as a means of prolonging life and preventing disease, is surprising. The frequent use of the bath was enjoined by the Mosaic laws; baths were erected at the public expense in Egypt: by the Greeks and Romans bathing was held in the greatest estimation, and even among the Celtic tribes, it was in general use; in the employment of the warm bath the latter were, in fact, ear-

lier than either the Greeks or Romans. At the present day, the habitual and general use of the bath is confined almost exclusively to the Eastern nations, and to a few of those in the more northern parts of Europe. It is much to be regretted, particularly when we consider the general unanimity of opinion among medical men in regard to its salutary effects, that bathing is not at the present day more generally resorted to, and that the means for bathing should not, ere this, have been universally introduced into all our larger cities. To every person, bathing, in water of a proper temperature, is decidedly beneficial; by preserving the cleanliness of the surface, it promotes the functions of the skin and the proper and equal circulation of the fluids; it invigorates every organ of the body, and causes the whole system to feel refreshed. Cheerfulness, activity and ease are its invariable effects when properly resorted to.

Cold Bath.—When the body is immersed in water of a temperature ranging from a few degrees above the freezing point, up to 70° of Fahrenheit's scale, it experiences the sensation of cold, which is more or less intense, according as the temperature of the bath sinks towards forty degrees, or approaches seventy degrees, and in proportion to the debility or vigour of the bather's system and other circumstances. The cold bath was no doubt the one first resorted to as a means of refreshment and recreation, especially in warm and temperate climates, and during the summer season, in the more northern. It is the one, also, which is the most generally adopted by savage nations, whose bathing place is the nearest river, or, when convenient, the sea. There are few subjects in respect to which more erroneous and dangerous opinions have been entertained, than in regard to the effects produced upon the human system by the frequent use of the cold bath. The latter was at one period very generally considered as a tonic, communicating to the body immersed in it additional

health and vigour, and a similar idea is still entertained by many persons. We need not wonder, therefore, that it should be so often resorted to as a means of strengthening the constitution of the feeble and valetudinary, and made to constitute an important item in the physical education of youth. The supposition of the tonic and invigorating effects of the cold bath is, however, altogether unfounded, and the practices which have grown out of it, have been productive of very serious mischief. The cold bath, so far from increasing the strength and energies of the system, on the contrary, diminishes both. It is not, therefore, a tonic, but a very powerful sedative; its depressing effects being always in direct ratio with the feebleness or exhaustion of the individuals subjected to its influence. The effects upon the surface of the body, and through it upon the internal organs, of water of a reduced temperature, are precisely the same as those produced by cold air, (see *Cold*,) with this exception, that as water is a better conductor of caloric than air, the heat of the skin will be carried off by the former much more rapidly than by the latter, and consequently the sedative effects of the cold bath will be more quickly and intensely experienced than those of an equally cold atmosphere. Although immersion in water, between forty and seventy degrees of temperature, will be readily borne by an individual in the full vigour of health, and who is not, at the time, labouring under exhaustion from fatigue, profuse perspiration, intemperance, or exposure to intense solar heat; although such a one will feel, on emerging from the water, if the immersion has not been too long continued, an agreeable glow over the whole body, and a feeling of increased vigour and lightness, yet, to those differently situated, the cold bath is not only mischievous in its effects, but may occasion a very rapid cessation of life. It should, therefore, be avoided by the weak and the valetudinary, and by all who are already chilled or labouring under temporary exhaustion from any

cause. For young children especially, the cold bath is decidedly improper. The morning and evening are the most proper periods for the use of the cold bath; nevertheless, the strong and robust, who bathe for pleasure, may choose their own time, provided it be not soon after a hearty dinner, nor while the stomach is actively engaged in the business of digestion.

A cold bath in the evening usually procures tranquil sleep, a circumstance well known to the Romans. But bathing at this time is only fitted for those who are accustomed to eat temperately at an early hour, who are not weakened by the fatigues of the day, and who perspire with difficulty. It would be the height of imprudence for those to use the cold bath in the evening, who are fatigued and exhausted with the exertions of the day, who dine late and banquet sumptuously, and who are prone to perspire when asleep.

There is no opinion more generally diffused, and at the same time more erroneous, than that which forbids the use of the cold bath when the system is heated. Dr. Currie has clearly proved, that all the inconveniences attributed to immersion in cold water, after the body has been heated by violent exercise, depends, not on the preceding heat, but on the debility and exhaustion of the bather at the time, from fatigue or profuse perspiration. In such cases, the salutary reaction and glow that ought always to succeed the bath cannot be produced, owing to the loss of that vigour and energy upon which they depend. The most favourable moment indeed, for the use of the cold bath, is during the greatest heat produced by moderate exercise, and when the body is yet in possession of its full strength. Immediately after running, wrestling, or other gymnastic exercises, by which the Roman youth were injured to the fatigues of war, they darted from the Campus Martius into the Tiber, and swam across it once or twice. The Russians and Finlanders, on issuing from their sudatories, or vapour baths, in which the thermometer rises to 167°

Fah., roll themselves in the snow at a temperature of 13° to 35° below zero; and so far from this transition rendering the impression of cold more hurtful, the good effects of it, on the contrary, are thereby insured. We can not, in fact, too strongly urge on bathers the propriety of taking moderate exercise before immersion.

The body should not be undressed until the moment of immersion; or when undressed, it should be closely enveloped in a flannel gown, which may be laid aside at the time of going into the water, and resumed immediately on coming out. Immersion in the water during the whole time of bathing, is far preferable to the person's coming out and plunging in again at intervals, which last practice is apt to produce a chill, and prevent the glow of the surface from following.

Immediately on coming out of the bath, it is proper for the person to dress himself quickly, and it is of the greatest advantage for him to wrap himself up in a flannel gown destined for the purpose. After this a short walk may be recommended—avoiding, however, that degree of exertion which would produce perspiration or fatigue. If the heat be slow in returning, a bowl of warm tea may be taken, or if the stomach be empty it will be well to take some light food. It is a bad custom to go to bed after the bath, unless the sensation of cold amount to shivering, and be accompanied with great weakness, in which case the person may be put to bed, and a bladder filled with warm water applied to the stomach.

Warm bath. Water of a temperature of about 95° of Fahrenheit's thermometer, constitutes a warm bath. This bath is the one best adapted for general use, both as a means for ensuring personal cleanliness and for promoting the health and functions of the skin. Persons in whom the vital actions of the surface of the body are habitually inert, whose skins are pale and of a diminished temperature, and their hands and feet often cold, as well as such as have been accidentally ex-

posed to cold and wet, will find more decided advantage from a bath even a few degrees warmer, while for those of a more robust constitution, with an active circulation and hot skin, as well as for those who have been excited and heated from exercise, water a few degrees lower in temperature is to be preferred. In many parts of Asia, particularly in those under the Turkish dominion, the warm bath is constantly resorted to, not only as an object of luxury, but as an effectual means of restoring strength and comfortable feelings to the body, when exhausted by labour, or fatigue of any kind. In this country, as well as in England, a very general opinion is entertained, on the other hand, that immersion in warm water, especially when continued for any length of time, invariably weakens and diminishes the force and action of the muscles and of the other organs. This opinion, however, is totally unfounded. So far from relaxing the body, diminishing its strength or exhausting its energies, a bath of from ninety-two to ninety-eight degrees, when used even by persons of a delicate frame, or whose system has been reduced by disease, will be found to impart a feeling of refreshment, to improve the strength, and to render their spirits lighter and more cheerful. Although, on immersion in a warm bath, the sensation experienced is that of warmth, yet when the temperature of the water is below that of the body, it must necessarily rob it of a portion of its caloric, and thus reduce the heat of the skin. The warm bath, also, diminishes the frequency of the pulse, renders the breathing freer and more slow, removes all impurities from the skin, softens its texture, and facilitates the circulation of the blood through its vessels, while it produces upon the whole nervous system a soothing or tranquilizing effect. The internal organs are beneficially affected by the action of the warm bath upon the skin. The healthful actions of the stomach and bowels in particular, and the regular and perfect nutrition of the whole

body, are powerfully promoted by its effects in equalizing the circulation on the surface of the body, and in causing the functions of the cutaneous exhalants to be performed with greater regularity and freedom. In promoting the growth and development of the body during infancy and childhood; in preserving the skin at that age free from disease, and the stomach and bowels in the proper discharge of their functions, the warm bath will be found to be admirably adapted. The uncomfortable sensations of increased heat, thirst, lassitude; the accelerated circulation, and excited senses, experienced after laborious exercise or a long journey in warm weather, are all allayed or removed by a warm bath; while, under such circumstances, the cold bath would be attended with hazard at least, and often with decided injury. After exposure to cold and wet, also, the warm bath, with frictions to the surface, will remove all unpleasant feelings, and prevent any subsequent suffering to the health. The habitually feeble and infirm, the nervous and excitable—they who are readily heated and as readily cooled—or who, in the enjoyment of a tolerable state of bodily health, have their vital energies, nevertheless, readily depressed by trifling causes of a debilitating character, ought all to use the warm in preference to the cold bath. The aged likewise will experience a great increase of comfort and renewed activity in their various functions by the frequent employment of warm bathing. The time for using the warm bath is when the stomach is free from food—or when the body has been fatigued by exercise or labour. The period during which immersion may continue, is from half an hour to an hour.

Hot bath. This variety of bath is only adapted to cases of disease; its effects will therefore be considered in that part of our work which treats of remedies.

Sea bathing. Nearly all the remarks which were made when speaking of the cold bath, will apply to sea

bathing. The effects of sea bathing are, however, somewhat modified by the circumstances under which it is made use of, and the effects on the skin of the salts with which the water is impregnated. Bathing in the sea is usually preceded by some degree of exercise, in walking or riding to the beach, and is accompanied with considerable muscular exercise in struggling against the waves or in attempts to swim. The dread which many experience on entering the sea, affects powerfully the nervous system, causing hurried respiration and acceleration of the heart's action. To these may be added, the effects from exposure often to a cool and keen wind from the ocean, which on our Atlantic coast must of course be easterly. The slower evaporation of sea than of fresh water, causes the skin to become encrusted with saline particles, which, in consequence of the friction produced by the clothing, excites a gentle stimulation of the whole surface. Hence, persons possessed of much less energy of frame may in general safely venture upon sea bathing, than can with propriety use the cold bath. Sea bathing cannot with propriety be resorted to, however, by the delicate and valetudinary, before the middle of June, nor later than the beginning or middle of September. The air of the sea-coast is too damp and cold to be endured with impunity by them at other seasons. The proper time for using the sea bath is before meals; never should immersion be attempted when the stomach is actively engaged in the process of digestion. The early hours of the morning may be safely appropriated to sea bathing, provided the individual rises from his bed and reaches the beach with a warm or hot and dry skin. Sea bathing is always injurious when the skin is cool, chilled, or perspiring, or when the body is exhausted by fatigue, late hours, or intemperance in eating and drinking.

SOAP.

Personal cleanliness can not be effectually secured without the use of

soap. A few remarks will render this evident to every one. In addition to the perspiration which is thrown out by the skin, a portion of which always remains upon the surface, the latter is constantly lubricated by an oily fluid. It is this that occasions, after bathing, the water, with which it does not unite, to collect in minute drops upon the body, and which gives to the skin of those in whom it is furnished in large quantities, an habitually greasy and dirty appearance; while of those in whom it is deficient, the skin has a harsh, dry, and scaly aspect. This oily exudation greases the linen when it is worn for too long a time—catches the dust floating in the air, and causes it to adhere to the skin, and likewise retains in contact with our bodies, a portion of the excrementitious matter, which it is the office of the skin to discharge from the system. The removal of this deposit, which is constantly accumulating, is absolutely necessary, as well for personal comfort as for the preservation of health. Now the oily matter referred to, with the foreign substances accidentally combined with it, is not readily nor completely soluble in simple water; it cannot, therefore, be effectually removed without the occasional use of soap, with which it combines without difficulty.

The frequency with which it is necessary to wash with soap will depend, in a great measure, upon the occupation and exposure of individuals. If these be such as do not subject them to an atmosphere loaded with dust, or to the frequent contact of such substances as have a tendency to soil the skin, washing the face, hands, and arms, once a day, with soap and water, will be sufficient, particularly if the water be warm or tepid, and its application be followed by brisk friction with a somewhat coarse towel. But mechanics, and they who, from any cause, are peculiarly liable to have deposited upon their skin, dust, dirt, or any foreign matters, will find that washing several times a day, especially before each meal, and previously to retiring to bed,

in addition to a frequent use of the bath, will be demanded, as well for the preservation of the skin as of their health generally.

The ordinary brown and yellow kinds of soap are altogether unfitted for cleansing the skin, as they invariably irritate it, and when frequently used, most generally cause it to become rough, chapped, or covered with painful and unsightly pimples. These effects arise as well from the strength of these soaps as from the yellow resin which enters so largely into their composition. Most, if not all, of the coloured and variegated soaps, prepared expressly for the toilet, are equally objectionable, in consequence of the action on the skin of the colouring matter, which is most commonly some metallic salt. From the occasional use, however, of pure white soap, particularly that manufactured solely from soda and olive oil, which is entirely without smell, hard, and brittle, the fracture presenting a pearly and granulated or crystalline appearance, not the least injury to the skin need be apprehended; while it will be found to cleanse it more effectually from all impurities than any of the substitutes for soaps which females, in particular, are too much in the habit of resorting to; many of which have a decidedly prejudicial effect. Pure white soap ought, therefore, to be invariably used in ablutions of the face and hands, or of the surface generally.

COSMETICS.

Cosmetics are certain washes, sold under different names, which ladies are induced to use, with the hope of beautifying the skin and adorning the person. No regular practitioner will give any encouragement to the use of these, as they always do harm, and frequently cause the occurrence of very dangerous accidents. The most noted are some of the preparations of mercury, or solutions of sugar of lead or of the nitrate of silver; and from the use of this last in particular, effects the very reverse of beautiful take place. Ladies have

gone into the bath with a fine white skin, and have come out brown or black, from the chemical action of the water or its gases on the cosmetic. Gowland's Lotion, a noted cosmetic, is a solution of corrosive sublimate in an emulsion of bitter almonds; and whoever is desirous of escaping the disagreeable consequences resulting from the action of a poison on the skin, or its introduction into the blood, should cautiously avoid all such dangerous compositions.

The only cosmetic wash from which no injury need be apprehended, and the effects of which, when conjoined with temperance, regular exercise, and serenity of mind, will never disappoint those who may be induced to use it, is that composed of *pure* spring water, of a proper degree of warmth.

COLOGNE WATER.

This fluid is an aromatic tincture, of great fragrance and pungency, much used at the female toilet. It receives its name from the city where it has been manufactured for more than a century, by the members of a family of the name of Farina. The Farinas, of course, loudly vaunt their Cologne water as superior to all the imitations of it made in Paris, London, and elsewhere, though the latter are in general so well prepared as to deceive the most suspicious. The following recipe is given to make a tincture, which some persons prefer even to the genuine *eau de Cologne* :—

Take of spirits of wine, half a pound; lavender water, one pound; balsam of Peru, 15 drops; essence of lemons, 6 drachms; camphor, 15 grains; spirit of rosemary, half a drachm; bergamot, half a drachm; digest for seven days, and strain. Excepting for its agreeable flavour, we know of no useful purpose to which this tincture can be applied.

Many females are in the habit of using Cologne water as a wash for the face, in order to preserve the skin smooth and free from pimples, and to prevent it from chapping. These latter

effects will, however, be much more liable to result from the stimulation of the skin, caused by the alcohol in the Cologne water, than when simple soft water is used. It cannot be too often repeated, that the objections to the frequent application of water to the skin are altogether founded in error. The brilliancy of the complexion, and the beauty and delicacy of the skin, can in no way be so well preserved as when frequent ablutions with warm water are resorted to.

DENTIFRICES.

Substances used for cleaning the teeth; most commonly those which are in the form of powder are so called. Of these, there is a great variety, as almost every dentist has his own favourite tooth-powder. Charcoal is much esteemed by some, as it not only cleans the teeth, but is supposed to improve the breath, and to assist in removing any smell from the mouth. In the East Indies, the betel-nut is burned to procure a very fine powdered charcoal. It has, however, the disadvantage of producing a bluish discoloration of the gum, which is indelible. Charcoal seems to act too severely on the enamel; for we have seen many cases where, after the continued use of it and of hard brushes, the enamel has been cut into grooves, as with a file; and it is well known, that, from its triturating power, charcoal is used by blacksmiths in polishing steel, to take out the file marks. Magnesia, prepared chalk, powder of cuttle-fish bones, oris-root, and similar substances, are also used, either singly or combined, as dentifrices.

As a general rule, all hard and gritty powders, and all acid washes, are injurious to the teeth. When, from childhood, a life of temperance and active exercise has been pursued, every species of dentifrice appears to be useless; all the care that the teeth then demand, to preserve them white and to prevent their decay, is, carefully removing, with a quill or splinter of wood, any portions of food which may have lodged during

meals between them, and then to rinse the mouth fully with tepid water, and to rub the teeth and gums well once a-day, in the morning, with a soft brush. Most of the accumulations about the teeth, as well as their discoloration and decay, are produced by a diseased condition of the digestive organs.

SECTION VI.

SLEEP.

SOUND, refreshing sleep is of the utmost consequence to the health of the body, and the vigour of the mental and corporeal faculties. Indeed, so great is its value, and so peculiar are its effects, that no substitute can be found for it; and if it does not pay its accustomed visit, every individual, without exception, feels his whole frame sensibly exhausted. His appetite ceases, his strength fails, his spirits become oppressed and dejected, or irritable and capricious, and, if the deprivation is long continued, he is soon reduced to a state of the utmost misery. Bodily and mental disease are the usual effects of too long protracted wakefulness.

By regular and sound sleep, the exhausted constitution is refreshed, and the vital energies restored; the process of assimilation, or of nourishment, goes on more perfectly; the vigour of the mental faculties is renewed, and the body attains its proper and regular growth. Sleep also contributes to the prolongation of life, and, in many cases, to the restoration of health, and the cure of disease.

During the day, the irritability or excitability natural to the human frame in an ordinary state of health, is exhausted by light, heat, sound, and, above all, by bodily exercise and mental exertion; and sleep is the method which nature has provided for the re-accumulation of this excitability, and the consequent restoration of the vital energy, which the body had lost in the performance of its daily functions.

Among the marks and symptoms of

longevity, that of being naturally a regular and sound sleeper, is justly considered to be one of the surest indications. This appears to be owing to the natural effects of sleep; to its retarding all the vital movements, collecting the vital power, and restoring to every organ its appropriate degree of energy. Indeed, if great watchfulness, by accelerating the consumption of the fluids and solids, abridges life, a proper quantity of repose must tend to its prolongation.

The preceding observations, of course, refer only to a proper quantity of sleep, as few things are more pernicious than too great an indulgence in it. This excess brings on a sluggishness, and dullness of all the animal functions, and materially tends to weaken the whole body. It blunts and destroys the senses, and renders both the body and mind unfit for action. From the slowness of the circulation which it occasions, there necessarily follows great corpulency, a bloated habit of body, and a tendency to dropsy, apoplexy, and other disorders. It will be proper, therefore, to consider—1, The number of hours necessary to be passed in sleep; 2, The period best calculated for repose; and, 3, The means of promoting it when wanted.

Quantity of sleep.—What number of hours are necessary to be passed in sleep, is a question that has occasioned much discussion. The opinion generally entertained by the ablest physicians, is, that although the quantity of sleep must necessarily vary somewhat according to the age and strength, and occupation of individuals, yet from seven to eight hours, in the four-and-twenty, constitute, generally speaking, the proper time, and that this period should scarcely ever be exceeded by adults, in the enjoyment of health. It is indisputable, that the delicate require more than the vigorous, women more than men, and very young children, more than either; but it is worthy of particular remark, that the sick and weakly seldom require more than eight hours, or at the most, nine hours, and

will rarely, if ever, fail to be injured by a longer indulgence. Every one, therefore, should endeavour to ascertain what quantity of sleep he requires; that is, by what quantity he is rendered most comfortable and vigorous throughout the day; this all may readily ascertain by experiment.

Nothing can be more absurd, than for any individual, who wishes to enjoy health, and to accomplish great things, to deny himself the advantages either of sleep or of exercise. Many studious men fall into a great and pernicious error, in abridging their proper time for repose, in order that they may have the longer period for study. This is highly detrimental, both to the mind and body, for the mind that has been much exercised throughout the day, not only seeks to recruit its strength in sound and refreshing sleep, but cannot regain its utmost energy without it; so that, instead of any advantage being gained by passing the greater part of the night in study or other occupations, it must necessarily be detrimental. It has been justly observed, that most persons will be able to perform very effectually, their ordinary tasks, whether mental or corporeal, by strict and uniform application during eight, or at farthest, ten hours, out of the twenty-four; which will leave abundance of time for sleep and exercise.

It is proper to add, that the opposite extreme of indulging in too much sleep, should be carefully avoided. By lying for nine, ten, or eleven hours in a warm bed, the flesh becomes soft and flabby, the strength of the digestive organs impaired, and the nervous system relaxed and enervated.

Time proper for repose.—Nature certainly intended exercise for the day, and rest for the night. This is proved by experience. For they who, in opposition to the dictates of nature, keep up during the night, whether in exercise, riot, or in study, the activity of the various organs of the system, and endeavour to seek repose for them by sleeping during the day, disturb the whole economy of their bodies, by

which their health is ultimately more or less impaired. Another point to be considered is, that by the custom of sitting up late at night, the eyes suffer severely, day-light being much more favourable to those delicate organs, than any artificial light whatsoever.

Valangin relates a circumstance that satisfactorily proves the advantage of sleeping in the night, instead of the day. It is an experiment made by two colonels of horse in the French army, who had much disputed which period of the day was fittest for marching, and for repose. As it was an interesting subject, in a military point of view, to have it ascertained, they obtained leave from the commanding officer to try the experiment. One of them, although it was in the heat of summer, marched in the day, and rested at night, and arrived at the end of a march of six hundred miles, without the loss of either men or horses; but the other, who thought it would be less fatiguing to march in the cool of the evening, and part of the night, than in the heat of the day, at the end of the same march, had lost most of his horses, and some of his men.

In hot climates, more especially in the neighbourhood of swampy ground, persons can not too sedulously avoid being out after sun-set, on account of the extremely deleterious qualities of the air at that period; indeed, in many places, to breathe the night air, is certain death, and in most, it is powerfully influential in the production of dysentery, and some of the worst fevers that prevail in those regions.

The plan of going to bed early, and rising betimes, has been called the golden rule for the preservation of health and the attainment of long life, and it is a maxim sanctioned by various proverbial expressions. It is an undoubted fact, that when old people have been examined, regarding the causes of their long life, they have uniformly agreed in one particular, that they went to bed early and rose early.

Indulging in sleep during the day-time and more especially after dinner,

is always productive of more or less injury to health, while it is never found to produce even that temporary feeling of refreshment which results from the same amount of repose taken after night. It should be remarked, that although many persons, who have enjoyed good health, have been in the habit of sleeping a little in the afternoon, yet, upon the whole, the practice is not to be recommended, as a far greater number suffer from the habit more or less inconvenience. When individuals in the possession of a good measure of health and strength, find an inclination to sleep after dinner, it is very commonly owing to their having eaten too much. They who take no more food than is required for the growth and nourishment of the body, find themselves even lighter, and more cheerful, after a substantial meal, than before it.

Best means of promoting sleep.—

Sleep is so natural to man, that in almost every instance, where the individual is in tolerable health, it must be his own fault, if he does not enjoy it to that extent which is so essential for his comfort and happiness.

The principal circumstances to be attended to, in order to procure refreshing sleep, are, the nature and quantity of our food and exercise; the size and ventilation of the bed-chamber; the quality of the bed and of its coverings; and the state of the mind.

It is certain that a full stomach almost invariably occasions restless nights, and it is, therefore, an important rule to make a very light supper, and not to take any food whatever later than an hour, or an hour and a half, before bed-time. Towards evening the digestive organs seek for repose, in conjunction with every other part of the body; they are then fatigued and enervated by the labours of the day, and, consequently, to give them much to do at that period, cannot fail to irritate and disorder them, which irritation, from the stomach being the grand centre of sympathies, is quickly propagated, through the medium of the nervous

system, to every part of the body—hence it is that they who eat late suppers experience a general restlessness, instead of a disposition to sleep. It is worthy of observation also, that the stomach will sometimes be much irritated by a small quantity of indigestible food taken at night, and by this sleep may be prevented as certainly as if the organ were overloaded with food.

A sufficient quantity of exercise or muscular exertion, powerfully contributes to sleep, and a principal reason why sedentary persons, and students generally, are so distressed for want of it, is from neglecting to take active exercise in the day. With some persons, the most effectual methods of procuring sleep will fail, unless exercise be resorted to in the open air. Pure air has of itself an exhilarating and soothing effect on the mind, conducive to sound repose. It is an excellent plan, when the exercise of the day has been limited, to walk up and down a large room or passage for half an hour, or more, before going to bed, and the use of the dumb-bells for a part of the time will augment its good effects.

The size, free ventilation, and coolness of the bed-chamber, and the nature of our bedding, deserve much attention.

If, notwithstanding an adherence to the preceding rules, sleep is still found to be unsound and unrefreshing, a brisk use of the flesh-brush, before going to bed, or rising from the bed, and freely ventilating it, will often produce a very favourable change.

Another excellent practice, in case you have gone to bed, and cannot sleep, is to rise, shake the bed well, draw the upper clothes down to the feet, and walk about the room, warmly clad, till both you and the bed are aired. Exercise, temperance, early rising, and regular hours of retiring to rest, are, however, the best means for procuring sound repose, and if duly persevered in, will never fail of the desired object. Opiates and sleeping draughts should never be resorted to, to procure rest—once resorted to, their habitual use will

become necessary, as sleep will not occur without their aid; while by their prejudicial influence upon the stomach and other organs, their employment will never fail, gradually, to undermine the health of the system.

The following miscellaneous rules respecting sleep deserve to be recorded in this place: 1. Many real or imaginary invalids lie long in bed in the morning, to make up for a deficiency of sleep in the night time; but this ought not to be permitted, for the body must necessarily be enervated by long continuance in a hot and foul air. A little resolution will enable invalids to surmount this destructive habit. By rising early, and going to bed in due time, their sleep will become sound and refreshing, which otherwise they cannot expect to be the case. 2. It is an indispensable rule, that fat people should avoid soft beds, and should sleep little and rise early, this being the only chance they have of keeping their bulk within due bounds. 3. It often happens, that if a person has not slept well, he feels a weariness in the morning; this will be best removed by rising and taking gentle exercise. 4. Such persons as are subject to cold feet, ought to have their legs better covered than the rest of the body, when they are in bed. 5. We should never suffer ourselves to doze, or fall asleep, before we go to bed, as it must greatly diminish the probability of sound repose, when we wish for sleep. 6. Reading in bed at night is a most pernicious custom; it strains the eyes, prevents sleep, and injures the health. 7. At large schools, where great numbers of children sleep together, the utmost attention ought to be paid to the nature of the beds, the bedding, the airiness of the apartment, and every thing that can prevent the bad effects of crowding numbers together, and compelling them to breathe a confined and vitiated atmosphere. 8. Remember, sleep is sound, sweet, and refreshing, according as the mind is free from uneasiness, and the alimentary organs are easy, quiet and clear.

BEDS.

The materials on which we sleep are of much consequence, both as it regards our health, and the soundness of our repose. The use of feather beds is almost universal in this country, yet there can be no doubt that they are highly injurious to health, and have a tendency to prevent sleep, especially in the summer. To the invalid, and to young persons who are disposed to distortion of the spine and shoulder, they are particularly hurtful. Such as consider them a necessary luxury in the winter, should invariably exchange them for a mattress in the spring and summer. The injury resulting from feather beds is occasioned, principally, by their accumulating too much heat about the body, and in this manner causing a profuse and debilitating perspiration, and predisposing the system to the influence of slight changes of temperature. By yielding unequally to the pressure of the body, the latter is thrown into a distorted position, which being resumed regularly almost every night, is liable to cause in the young and weakly a permanent deformity. Hair mattresses are superior to every other kind of bed for this country, and it is highly desirable they should be generally adopted. By those whose means will not permit the purchase of hair mattresses, those of moss or straw, or what are still better, those made from the leaves which surround the ear of Indian corn, properly prepared and thoroughly dried, will be found an excellent substitute. Feather beds are more injurious to the health of children, than even of adults, and especially if they are weakly.

In very cold climates feather beds are often necessary, and in the United States the aged may often require them, in order to preserve or increase their heat, which is sometimes inconsiderable, and if lessened would prevent their sleeping.

The bed-clothes should also be as light and as cool as possible in the spring and summer; and in the winter they should be just sufficient to preserve

a comfortable degree of warmth. Young people and invalids, in particular, ought to avoid many, and heavy, bed-clothes. The head should be only lightly, or rather not at all, covered. The use of curtains to the bed should be avoided; at least, they ought not to hang down low, nor be drawn in any degree around the bedstead. It is impossible, indeed, to conceive what possible advantage can result from curtains to a bed; they cannot with propriety be used to exclude light or cold, because the former should be excluded by window-blinds, or curtains; and as it respects the latter, it is far better guarded against by a sufficiency of bed-clothing. Curtains are injurious, by preventing the proper circulation of the air breathed by those who occupy the bed, and by accumulating dust, cause it to be inhaled into and irritate the lungs.

The bed, as well as the bed-clothes, should be kept strictly clean, and carefully guarded against damp. Beds are apt to become damp for want of proper airing when not constantly used; from the dampness of the room, and from the coverings not being perfectly dry when laid on the bed. Colds, rheumatisms, and even more fatal complaints may be caused by occupying a damp bed. It would be, in general, a more judicious practice if beds, instead of being made up soon after the persons rise from them, were turned down, or their coverings were thrown separately over the backs of chairs, and thus exposed to the fresh air from the open windows during the day.

BED-CHAMBERS.

A bed-chamber ought not to be situated on the ground floor; and an elevated apartment is particularly recommended to literary and sedentary people. It should be airy, large, and lofty, and never a small confined room. Nothing can be more imprudent or absurd than the conduct of those who have splendid houses, preferring to sleep in small apartments. The more airy a bedroom is, the better; and it will be still better if it be also exposed to the in-

fluence of the sun. A bed-room ought to be well ventilated in the day time, as it is principally occupied in the night, when all the doors and windows are shut. The windows should be kept open as much as the season will admit of, during the day; and sleep will probably be more beneficial, in proportion as this rule is practised. Indeed, nothing is more material, not only for invalids but for persons in health, than the admission of pure air into their bed-rooms by various ways, and in different degrees, according to circumstances.

Keeping open the windows of bed-rooms during the night, ought never, however, to be attempted, but with the greatest caution.

It is imprudent to sleep in a very warm room, as it makes one faint, and relaxes too much the whole system.

Unless there is an apprehension of damp, a bed-room should rarely have a fire in it, as it has a tendency to vitiate the air, often fills the room with dust and ashes, and sometimes may be the means of setting the apartment on fire. If a fire is kept in a bed-chamber, the danger arising from a confined room becomes still greater; numbers have been stifled when asleep, by having a fire in a small close apartment. They who live in hot countries ought to be very particular regarding the place they sleep in. The apartment should be roomy, dark, shaded from the rays of the sun and moon; temperate as to heat and cold, and rather inclined to coolness than heat; while a free admission of air is allowed during the day time, the windows should be carefully closed as soon as the night sets in.

It is a good rule for those who are obliged, on account of business, to spend the day in crowded cities, to sleep, if possible, in the country. Breathing fresh air in the night time will, in some measure, make up for the want of it through the day. This practice would have a greater effect in preserving the health of those who reside in cities, than is commonly imagined. It is hardly necessary to observe, that in consequence of the chilly air of the first, and

the noxious exhalations which fill the second, damp and filthy bed-rooms ought to be particularly avoided, as they are in the highest degree injurious to those who occupy them.

DREAMING.

Dreaming indicates an imperfect state of sleep, insufficient to produce that degree of refreshment which is essential to the maintenance of health. Many dreams, also, are of a peculiarly painful, disagreeable, or disgusting character; on these accounts, therefore, dreaming should as much as possible be avoided. Dreams, especially those of a harassing and disagreeable kind, are most generally experienced by persons labouring under a state of nervous excitement, produced by indolent and luxurious living—by intemperance, or by the undue indulgence of the passions and other mental emotions. As a general rule, dreaming may be prevented by whatever causes perfect and uninterrupted sleep; such as sufficient exercise during the day, temperance in eating and drinking, a cheerful and contented mind, and the avoidance of late or heavy supper, or of strong tea or coffee during the evening. It is very generally the individual who retires to bed with his stomach overloaded with food, or labouring under irritation from its contents, even when these are moderate in quantity, if they be of a very stimulating or indigestible nature, that suffers from attacks of the night-mare, which, independent of the agony they produce, are by no means unattended with danger. It has been presumed, and not without strong probability of truth, that many of the sudden deaths which take place during the night, in persons apparently in the full enjoyment of health, are to be attributed to night-mare.

The *night-mare* is a certain uneasy feeling during sleep, as of great anxiety and difficulty of breathing, and of strong but ineffectual efforts to shake off some incumbent pressure, or to relieve one's-self from great inconvenience. The imagination is generally

at work to find some cause for the unpleasant feeling, and pictures some monstrous shape as the author of the mischief. It commonly arises from an imperfect and unhealthy digestion, from flatulence, from heavy suppers, and from a constrained uneasy posture of the body. Such persons as are subject to night-mare should take no food whatever in the evening, should pay attention to the state of their bowels, and should sleep upon a mattress with the head and shoulders raised.

SECTION VII.

THE PASSIONS.

THE passions are a natural and necessary part of the human constitution, and were implanted in it by the Great Creator for wise and useful purposes. Without them, we could have no motive to action, the mind would become utterly torpid, and, there being no foundation for morality or religion, virtue and vice would be nothing more than indiscriminate and unintelligible terms. The passions are only prejudicial when allowed to exceed their proper bounds, or are excited by improper objects; and to preserve them within their just limits, and to give them their proper direction, we are furnished, not only with reason and the light of nature, but likewise, with that more certain guide, the light of revelation.

From the intimate though mysterious connection between the mind and body, they reciprocally affect each other, and hence the passions exert a powerful influence over health, and in the production and cure of disease. The two great sources of the passions respectively, are desire and aversion; those of the former class tending in general to excite, and of the second to depress, the powers of the animal system. The chief passions which arise from desire are joy, hope, and love; and the most eminent in the train of aversion, are fear, grief, and anger.

Joy is a passion in which the mind

feels a sudden and extraordinary pleasure; the eyes sparkle, a flood of animation overspreads the countenance, the action of the heart and arteries is increased, and the circulation of the blood becomes more vigorous. Instances are not wanting, in which this passion, when unexpectedly excited and violent, has produced disease, or even immediate death; but when moderate, and existing only in the form of cheerfulness, it has a beneficial effect in preserving health, as well as in the cure of disease.

Hope. Of all the passions, *hope* is the mildest; and, though it operates without any visible commotion of the mind or of the body, it has a most powerful influence on the health of the one, and the serenity of the other: it contributes, indeed, so much to the welfare of both, that if it were extinguished, we could neither enjoy any pleasure in this life, nor any prospect of happiness in the life to come; but by the beneficent will of Providence, it is the last of the passions that forsakes us.

Love is one of the strongest and most absorbing passions with which the mind is affected, and has at its commencement when happy, and properly guided by reason, a favourable influence on all the functions of the body; but being often in its progress attended with other passions, such as fear and *jealousy*, it is liable to become the source of infinite disquietude. No passion undermines the constitution so insidiously, as violent and unreasonable or misplaced love. While the whole soul is occupied with the thoughts of a pleasing attachment, both the mind and body become languid from the continuance of vehement desire; and should there arise any prospect, real or imaginary, of being frustrated in its gratification, the person is agitated with all the horrors and pernicious effects of *despair*. Love, when violent and unsuccessful, frequently produces a wasting of the body, terminating sooner or later in death.

Fear has its origin in the apprehension of danger or evil, and is placed,

as it were, a sentinel for the purpose of self-preservation. When intense or habitually indulged in, it destroys the energies of both mind and body, retards the motion of the blood, obstructs digestion, and prevents the proper nutrition of the body. Violent terror has been known, in an instant, to turn the hair perfectly white, and in other instances, to produce fatuity of mind, or even instantaneous death. By weakening the energies of the system, this passion disposes greatly to disease during the prevalence of epidemics.

Grief. There is no passion more injurious to health than *grief* when it sinks deep into the mind. By enfeebling the whole nervous system, it depresses the motion of the heart, and retards the circulation of the blood, with that of all the other fluids; it disorders the stomach and bowels, and ultimately every other organ of the body, producing indigestion, consumption, and other chronic diseases; obstinate watchfulness, is a very common effect of grief. It preys upon the mind as well as the body, and is nourished by indulgence to the utmost degree of excess. During the violence of its earlier period it spurns at all the consolations, either of philosophy or religion; but if life can subsist till the passion be alleviated by time, and submit to the cheering influence of company, exercise, and amusements, there is a prospect of recovery; though grief long continued, often gives a shock to the constitution that nothing can retrieve. Grief, like fear, predisposes to an attack of epidemical diseases.

Anger is a passion suddenly excited, and which often no less suddenly subsides. Equally furious and ungovernable in its nature, it may justly be considered as a transient fit of madness. The face, for the most part, becomes red, the eyes sparkle with fury, a violent commotion is visible in the countenance, and pervades the whole body. The nerves are unduly excited; the pulsation of the heart and arteries, and with them the motion of the blood, are sometimes so much increased, as to

occasion the bursting of some of the minute vessels of the brain or lungs. The stomach, liver and bowels, are often violently affected by intense anger—digestion is always disordered, a violent colic is sometimes produced, and very often all the symptoms of jaundice. Thus it is often the immediate agent in the production of fevers, inflammations, spitting of blood, apoplexy, and other acute disorders. As anger is liable to be spent by its own violence, it is commonly of short duration; but when existing in a more moderate degree, and combined with sadness or regret, it gives rise to fretting, which is extremely pernicious to the health. All the passions, but more especially anger and fear, are increased in intensity, and caused to exert a more frequent influence over the mind, by a life of luxury and intemperance. Hence, an essential means for their subjection, is a regular, active mode of life, a mild and moderate diet, and the abandonment of all intense excitements and stimulating drinks.

Anxiety of mind. A state of mind altogether adverse to health; when constantly indulged in, it destroys the digestive powers of the stomach, impairs the functions of the lungs, disturbs the regular circulation of the blood, and impedes the nutrition of the system. It is a fruitful source, in civic life, of chronic affections of the stomach, liver, heart, lungs and brain. Even the anxiety induced, in a sensitive mind, by the ill-humour, caprice and unkind treatment of others, is deeply felt, and proves highly injurious to health.

SECTION VIII.

CARE OF THE HAIR.

UNDER the ordinary circumstances of health, in conjunction with temperance and regular exercise, the only safe and effectual means of preserving the hair and of promoting its growth and beauty, are the frequent use of the

comb and brush, and regular ablution.

Whatever has a tendency to impede the passage of the fluids by which the hair is nourished, from the root along the cavity which exists in the centre of each hair, must necessarily prevent its proper growth—render it thin, and deprive it of its soft and glossy appearance. There can be little doubt that this is the effect, to a certain extent, of the practice of twisting the hair from its natural position, and of plaiting or firmly braiding it, pursued in obedience to the dictates of fashion, by most females. The injurious consequences of such modes of dressing the hair, can only be obviated by a daily resort to the comb and a hard brush, which, by disentangling, restores it to its natural direction, and freeing it from every restraint, enables it to receive a due supply of its appropriate fluids. The growth of the hair is not, however, always impeded by artificial means: this may result, also, from allowing it from neglect to become entangled and matted together—a condition to which it is extremely liable from its peculiar structure. Hence, under all circumstances, frequently combing and brushing it through its whole length, is absolutely necessary to its proper preservation.

Independent of the good effects of these operations in rendering the hair pervious to the fluids which rise from its roots, they facilitate its development also, by freeing the scalp from accidental impurities, facilitating the circulation through its vessels, and thus enabling it to perform freely its functions.

Another means of promoting the growth of the hair and insuring its permanency, is by frequently cutting it. It must be very obvious that when kept short, its fluids are less liable to be obstructed in their passage than when the hair is long—it being difficult in the latter case to preserve it straight, and to permit it to have its natural flow. It is in early life, particularly, that frequent cutting will be found highly advantageous.

Whenever the hair becomes thin and

irregular, or its beauty is otherwise impaired, nothing is better calculated to restore its proper growth than cutting it short. Frequently cutting the hair also prevents it from splitting at the ends and growing forked—the occurrence of which, so common in young persons, gives it an extremely inelegant and ungraceful appearance.

In children, keeping the hair short is a circumstance of no little importance—and should not from any light consideration be neglected. Their health, and in some respect their beauty also, is prejudiced by a contrary practice. Nothing is more common than to see a luxuriant head of hair accompanied in children by paleness of complexion, weak eyes, and frequent complaints of headach. Upon this subject we find the following excellent remarks in a little work entitled “Advice to Young Mothers, by a Grandmother.” We recommend their attentive perusal to every parent.

“The hair in children should be cut short until they are eight or nine years old—as the cooler the head can be kept, the less danger there is of many maladies peculiar to that part of the body, especially water on the brain. Besides, there is good reason for believing, that children who have a great quantity of hair, are those most liable to eruptions, as scald head, &c.: it is at least certain, that in them eruptions are very difficult to remove. The trouble, also, of keeping long hair sufficiently clean, and the length of time necessary for this purpose, is often a cause of much ill humour and many cross words, between children and their attendants, which it would be better to avoid.

“Mothers, whose vanity may be alarmed lest repeated cutting the hair for so many years should make it coarse, may be assured they have no cause for this apprehension, provided the hair be kept constantly brushed. I have never seen softer, finer hair, than on girls who have had it kept short—like that of school-boys—until they were in their tenth year.”

When there is any tendency to sores or eruptions on the head of children, fine combs are very apt to promote them. There is no doubt that the heads of young persons, which are never touched by such combs, may be preserved much cleaner, by strict attention otherwise, than such as are scratched and scraped every day. If any dirt appears on a child's head, which a brush will not remove, that particular part should be rubbed with a towel, and soap and water—but in general, the brush will be found quite sufficient to keep it perfectly clean. The seldomer, indeed, a fine comb is applied to the head of an infant, the better: when, however, those of ivory, tortoise shell, or bone are used, the greatest care is necessary lest they wound the skin and produce a sore, or by unduly irritating it augment the production of the scurf they are often intended to remove.

PRESERVATION OF THE SIGHT.

The following are the general rules for preserving the sight unimpaired for the longest possible period.

1. All sudden changes from darkness to light, and the contrary, should be avoided as much as possible.
2. Avoid looking attentively at minute objects, either at dawn or twilight, and in dark places.
3. Avoid sitting near a dazzling or intense light, as of a lamp or candle, and facing a hot fire.
4. Avoid reading or sewing much by an imperfect light, as well as by artificial lights of any kind.
5. Avoid all dazzling and glaring sunshine, especially when it is reflected from snow, white sand, or other light coloured bodies.
6. Avoid dust, smoke, and vapours of every kind, which excite pain or uneasiness of the eyes.
7. Avoid rubbing or fretting the eyes in any manner, and wiping them with cotton handkerchiefs.
8. Avoid much exposure to cold north-west or easterly winds.
9. Avoid all spirituous and heating

liquors, rich and highly seasoned food, and every species of intemperance, all of which invariably injure the eyes and impair their sight.

10. Some persons living in cities who have weak eyes, find permanent relief only by a change of residence to the country.

Persons of this description will find an advantage in wearing some defence before their eyes, especially when exposed to heat, sunshine, or glaring lights. This will be best if of a green colour. Spectacles that do not magnify, of the same hue, are well suited for this purpose.

CARE OF THE BOWELS.

Regularity of the bowels in reference to their natural discharges is of very great importance to health and comfort. An evacuation once in the twenty-four hours is the best standard of frequency—this, in general, takes place whenever the digestive organs are in a state of health. Some persons, it is true, are naturally inclined to costiveness, and without feeling any inconvenience pass several days or even weeks without a stool. In general, however, a costive state of the bowels arises from errors in diet—want of exercise—intemperance, or in fact from whatever reduces the tone of the system generally, and of course that of the digestive organs. Confinement to a diet composed chiefly of dry animal food, or of food highly seasoned—the use of fresh bread, and of warm rolls and cakes, very generally induces a costive state of the bowels. Costiveness is very common also in persons who use little exercise, or who pass the greater part of the day within doors in occupations of a sedentary character—hence, females are much more subject to it than males. Lying in bed to a late hour in the morning is unfavourable to a regular condition of the bowels: it causes costiveness, not only by increasing perspiration, but also by creating an inactive condition of the system generally.

Early risers, who pass several hours

of the morning in walking abroad in the open air, if they be temperate withal, seldom complain of any want of regularity in their stools.

The daily use of wine, especially the red or astringent varieties, retards very materially the natural discharges from the bowels. The same effect takes place in persons who pass the greater part of their time in company, and who from a false delicacy resist the calls of nature. They who ride much on horseback, or in a carriage, and persons at sea, are said, also, to have a habitually sluggish state of the bowels.

The means of obtaining a regular condition of the bowels will be readily perceived from the foregoing enumeration of the causes by which costiveness is induced. In addition to early rising, daily exercise of the body in the open air, and abstinence from wine and ardent spirits; the diet should be composed principally of vegetable food. Plain soups, especially of veal and mutton, with the addition of the ordinary culinary vegetables, well boiled and not too highly seasoned, will be found a very excellent diet for those inclined to costiveness. Fresh fruits, perfectly ripe, or fruit cooked, with or without the addition of sugar or molasses, are gently laxative, and hence very proper articles to be eaten by such individuals. Spinach, when in season, and properly boiled, is also a very pleasant and wholesome vegetable for persons of costive habits. The same is true also of well boiled cabbage and sourcrot, when these agree perfectly with the stomach. Bran bread, or wheaten bread with an admixture of rye or Indian meal, is better suited to the habitually costive than bread composed entirely of fine wheat flour. For drink, those troubled with costiveness should make use of water, either alone, or with the addition of a small quantity of sugar or molasses, or water slightly acidulated with some of the vegetable acids. A very pleasant drink is made by dissolving currant jelly in water, or by pouring boiling water upon sliced

apples or peaches, and allowing it to stand until cold. This acts gently upon the bowels, and hence tends to obviate costiveness. Buttermilk, or sweet whey, may likewise be occasionally drunk with advantage by those whose fecal discharges are defective. all ardent spirits and wines, especially those of an astringent nature, should be carefully avoided. The method recommended by the celebrated Locke, for procuring a regular discharge from the bowels, is founded on correct principles, and should not be neglected; it is, "to solicit nature, by going regularly to stool every morning, whether one has a call or not." Such a practice will very often induce a habit which in time becomes natural.

To remove costiveness, individuals should be extremely cautious in resorting to purgatives, or those medicines, under whatever name they may be sold, which have the effect of inducing evacuations from the bowels. The frequent use of these articles, however mild their operation may appear to be, tends to disturb the stomach and bowels; and consequently, to vitiate or retard digestion. As a consequence, the costive habit, to obviate which they are resorted to, is in fact increased, and with it the necessity for repeating the medicine more frequently, or of increasing its activity; and finally, a stool can never be procured without its use. In a very short time, from their use the habitually costive experience invariably more injury than from the original complaint. It is always, therefore, more safe to remove costiveness by a proper diet and regimen than by medicine; and unless the costiveness is dependent upon deep-seated disease of the bowels, stomach, liver, or some other organ, by a proper attention to these measures, and perseverance in their use, it may very generally be overcome.

THE FEET.

The proper care of the feet consists in defending them from cold and wet, by stockings and shoes of a proper tex-

ture and thickness, and so adapted in shape and size as to allow perfect freedom to the motions of the feet in walking, while they do not press unnecessarily on any part. The feet are extremely subject to the impression of cold, and when chilled, in consequence of the close sympathy between them and other parts of the body, disease is apt to be occasioned in some one of the internal organs. Hence, not only should they be protected always from cold and damp, but when accidentally wet, the shoes and stockings should be immediately changed, and the feet bathed in warm water, or rubbed perfectly dry with a coarse cloth. Tight and misshapen shoes are injurious, as well by preventing the individual from walking securely and with sufficient ease, as by causing a thickening of the cuticle over the joints of the toes, forming what are called corns, and which, by pressing upon the parts beneath them, are the cause of very considerable pain whenever walking is attempted. It is essential that the feet, as well as every other part of the body, should be kept perfectly clean by frequent ablutions.

USE OF TOBACCO.

Tobacco, *nicotiana tabacum*. A well-known plant, which derives its generic name from Nicot, a French ambassador, and its specific name from the island of Tobago, whence it was introduced into Europe in 1560. When tobacco is first taken into the mouth and chewed it excites nausea and disgust, and if swallowed, the most violent sickness, faintness, and other distressing effects. In one or other of its forms, it has, nevertheless, become one of the most generally used articles of luxury, exhibiting thus a remarkable illustration of the wonderful power of custom, in reconciling us to those things which are at first the most disagreeable. Tobacco has fascinated all ranks of men, and the natives of every climate.

The attractions of tobacco seem to be owing to its narcotic properties, by which irritability is soothed, and serenity induced, as by opium and some

other substances. In large quantities, and in those who are unaccustomed to it, stupor, giddiness, nausea, vomiting, and even death, are produced.

The effects of tobacco, though they resemble, in many respects, are considerably different from those of any other inebriating agent. Instead of quickening, it lowers the pulse, and when used to excess, produces languor, depression of the system, giddiness, confusion of ideas, violent pain in the stomach, vomiting, convulsions, and death. Its essential oil is so intensely powerful, that two or three drops inserted into a raw wound, prove almost instantly fatal. But when used in moderation, tobacco has a soothing effect upon the mind, disposing to placid enjoyment, and mellowing every passion into repose. Its effects, therefore, are inebriating; and they who habitually indulge in it may with propriety be denominated, in a certain sense, drunkards. In whatever form it is used, it produces sickness, stupor, bewilderment, and staggering, in those unaccustomed to it; and in those who habitually indulge in it, the digestive powers and tone of the stomach are always more or less impaired. There is no form in which it can be taken that it is not decidedly injurious and disgusting.

In the form of *snuff*, although a moderate quantity, taken now and then, may do no harm, yet when used daily, particularly in the extent to which habitual snuffers carry it, it is positively pernicious. By the habitual use of snuff, the membrane which lines the nose becomes thickened, the olfactory nerves blunted, and the sense of smell consequently impaired, if not destroyed. Nor is this all, for, by the strong inspirations which are made when the powder is drawn into the nostrils, some of it is pretty sure to escape into the stomach. The latter organ is hence directly subjected to a powerful medicine, which not only acts as a narcotic, but produces heartburn, and every other symptom of indigestion. If it were attended with no other inconvenience, the black, loathsome discharge from

the nose, and swelling and rubicundity of this organ, with other circumstances equally disagreeable and disgusting, which it produces, ought to deter every individual from becoming a snuffer.

The *smoker*, while engaged at *his* occupation, experiences a much greater degree of enjoyment than the snuffer. An air of peculiar satisfaction beams upon his countenance; and as he puffs forth volumes of fragrance, he seems to dwell in an atmosphere of contented happiness. Smoking, nevertheless, pollutes the breath, blackens the teeth, wastes the saliva which is essential to perfect digestion, and injures the complexion. In addition to this, it is apt to produce dyspepsia, and other disorders of the stomach; and, in corpulent subjects, it disposes to apoplexy.

The observations made upon the effects of snuffing and smoking, apply, in a still stronger degree, to *chewing*. This is the worst way for the health in which tobacco can be used. The waste of saliva is greater than even in smoking, and as a portion of the active principle of the tobacco is invariably introduced into the stomach, serious derangements of the digestive organs are invariably produced. All confirmed chewers are peculiarly subject to dyspepsia and hypochondriasis; and many of them are afflicted with liver complaints, brought on by their imprudent habit.

SECTION IX.

TRAINING.

AMONG the nations of antiquity, distinguished by their genius and political sagacity, it was a great object with their lawgivers and statesmen, to direct the education of youth, so as to produce in them the greatest possible aptitude for war, by increasing the development, health, and vigour of their bodies. To this end, most of their celebrated games were directed; and the youth who participated in these, while they afforded to the moral phi-

losopher examples of patriotic and generous emulation, furnished also to the painter and the statuary the finest models of the human form, and to the natural historian some curious results of the effect of external agents, in promoting the growth and activity of the animal economy. It may be stated, in general terms, that the efforts of the *athletæ* were directed so to regulate their diet, exercise, and sleep, as to produce the greatest possible strength of action and power of endurance; and we have the testimony of an inspired writer, that they who were ambitious of a crown of victory in the Grecian games, "were temperate in all things." In our own time, this art of bringing up the human constitution to its highest pitch of muscular vigour, and capability of enduring fatigue, pain, and hardship, has been brought almost to a science; and though the ends to which it is commonly directed are far from sublime or virtuous, being principally those of prize-fighting, or walking for a wager, the whole process, and its results, present some curious facts in physiology, and illustrate in a very striking manner the importance of a well-regulated diet and regimen as a means of preserving health and increasing the vigour of the constitution under all circumstances; and the important service a well-directed system of training would render to the dyspeptic, and others labouring under chronic affections, or under a general reduction of the powers of life, produced by irregular or sedentary lives.

In a course of training, the great point is to regulate carefully the diet, and to give such food, as is at once nutritive and easily digested. As we have repeatedly stated in different parts of this work, animal food is the most nourishing, but requires a due proportion of vegetable aliment, to prevent bad effects from it on the constitution. Beef, mutton, and venison are the most easily digested kinds of meat, and hence are almost the only kinds of animal food allowed to those who are under a course of training; the young of ani-

mals, as veal and lamb, and fat or oily food, as pork, are deficient either in their powers of nutrition or digestibility, and consequently are entirely forbidden. The vegetables allowed are potatoes, brocoli or turnips, and stale bread or crackers. Pastry, pies, and puddings are to be avoided, and all the varieties of spices and sauces. Vinegar and salt are the only condiments allowed. The quantity of food cannot be specified; it must vary with the constitution of each individual.

The drink allowed in training is pure soft water. If wine is taken, it should be only in very moderate quantity, largely diluted with water, and white is preferred to red. Spirits in any shape, either plain or diluted, are never allowed, under any circumstances whatever.

The most essential particular in the art of training, is to regulate the exercise, and to take plenty of it. Both within and without doors, active exercise of various kinds must be taken. Walking, riding, fencing, quoits, tennis-ball, the dumb-bells, may all be practised. As long as the perspiration is moderate and not debilitating, exercise may be persevered in from four to six hours a day, with the most decided increase of general health and muscular vigour. A free exposure to pure air is an essential requisite. The novice in training is recommended to go to bed early, and to sleep from seven to eight hours.

The above precepts contain the principal means for raising the body to its highest degree of health and perfection; and the diligent practice of them must, as experience testifies, have the best effects on the expansion and motions of the chest, on the development of the muscles, on the function of digestion, and on all the secretions of the body.

BLEEDING.

The artificial abstraction of blood is often resorted to by persons in health, either to prevent the formation of too much blood in the system, or more generally with the pretence of preventing

disease. But such a practice is in the highest degree improper; it can answer neither end; on the contrary, it is attended, if it be statedly or repeatedly resorted to, with the most injurious effects.

Persons so constituted as to make much blood, should carefully avoid all those causes which tend to augment it, especially an indulgence in animal food, wine, and malt liquors; and when they are sensible of a considerable increase in the quantity, they should confine themselves to a light frugal diet, consisting principally of vegetables, or for a time solely of bread and water—should sleep but very moderately, and take much active exercise. Nothing can be more opposed to reason and experience, than for such individuals to have recourse occasionally to the abstraction of blood by the use of the lancet, or cupping-glasses, in order to prevent too considerable a formation of this fluid; for habitual blood-letting invariably begets, under such circumstances, an habitual over-fulness of the vessels, which calls incessantly for a repetition of the same supposed remedy. Some persons are in the habit of being bled every spring or fall, or at both these seasons; but, however robust the constitution, this is not a practice to be recommended, since, like all other periodical or repeated bleedings, it proves only a palliative remedy, which sooner or later greatly enervates the body, deranges its functions, induces a premature old age, and calls for a more frequent resort to the operation.

HABIT.

This term, when applied to corporal subjects, signifies the effect of frequent repetition in facilitating the performance of certain motions or trains of actions. A conspicuous illustration of the power of habit, is seen in the practice of musicians on various instruments. To play on any of these, required at first the closest attention of the mind, to exert the power of volition in directing the various muscular motions required; but by habit, those mo-

tions return in their proper order, without the slightest apparent effort; and even while the performer can think and talk on other subjects. When a child begins to learn the art of reading, the form of every letter, and the power of every syllable, demand his attention; but in maturer years, the eye glances over the page with the rapidity and certainty of instinct, and seizes the words before it, without the consciousness of an effort. The effects of custom or habit on the mind and body, are interesting in a metaphysical, ethical, and physiological point of view. We are all the creatures of habit, and our circles of action, as Dr. Darwin calls them, return with astonishing and noiseless regularity. When the time of meals or of sleep arrives, though the stomach be not empty, nor the limbs fatigued, though the mind be occupied with other things, the usual sensation of hunger or drowsiness comes on, and we feel the want of something to which we have been accustomed. The repetition of certain motions, renders the muscles that perform them quick and strong, or prompt and steady in their action; hence the dexterity and skill of the watchmaker or philosophical instrument maker; hence the ease of the mechanical part of their art to the painter or sculptor; and the steadiness of the limbs and acuteness of vision of the mason and sailor, in the execution of their perilous occupations.

Good habits, early begun, contribute much to the preservation of the health. Early rising, temperate meals, and regularity in the alvine discharges, when early practised, and diligently persevered in, will give a degree of comfort and vigour, unknown to the irregular and careless liver. Infants can very soon be taught the habit of feeding, and of performing the usual evacuations, at regular times. The action of medicines on the living body is much influenced by habit. A person who is accustomed to take emetics or purgatives, requires, after a time, to have their quantity increased; and the opium-taker and dram-drinker require

their poison to be either augmented in quantity or activity, to produce the usual effects. By habit, the most nauseous substances lose their disagreeable effects, and even infectious principles lose, to a certain extent, their power; thus, the use of tobacco becomes a luxury; and prisoners have been known to occasion fever in others, by bringing an infectious miasm from their cells, where they themselves had been in the habit of inhaling it with impunity.

Idiosyncrasy is a peculiarity of constitution, rendering a person liable to be affected by certain agents, differently from the generality of mankind. Thus, some persons are incapable of using butter or cheese: some are purged by honey; others cannot wear flannel without intolerable irritation of the skin; some have a violent fever and eruption, produced by the use of certain kinds of fish, or certain fruits, or malt liquors. Some people have idiosyncrasies with respect to medicines; thus, opium, and calomel, have such very distressing or violent effects on some patients, that they cannot be used by them as by others. Idiosyncrasies are to be discovered only by experience in each individual case; and, where they are matters of indifference, it is needless to waste time in combating them; but where they may lead to disease, or interfere with methods of cure, a prudent physician will endeavour, if possible, to correct them.

SECTION X.

MANAGEMENT OF INFANTS.

Navel-string. When the new-born infant is separated from the mother, and the navel-string is tied, the part attached to the child should be wrapped in a piece of soft linen rag, to keep it from fretting the skin of the neighbouring parts. In five or six days after birth, this portion of the cord drops off, leaving the part below a little tender, but this goes off in a week or two.

merely by the application of a rag spread with a little simple cerate. A very imprudent practice is to be avoided; namely, dressing the navel with a piece of scorched rag; this will, in many cases, produce considerable irritation of the part, and instead of accelerating the healing of the slight sore which is left after the separation of the navel-string, will cause it to enlarge, and become peculiarly troublesome and painful.

Washing. It is very proper to wash the new-born infant with warm soft water, as there are always various impurities about its surface; frequently a thick layer of white viscid matter covers a great part of its body. This washing should be very gently performed, and we need not be anxious to have every part of the skin quite clean. What does not come off at the first washing, will readily come off at the next. No spirits should be put on any part of the body; they are apt to cause a fretting and soreness of the skin. The idea that washing the body or wetting the head of an infant with spirits, prevents it from catching cold, is perfectly ridiculous.

Clothing. The good sense of modern times has abolished the absurd and dangerous practices of swathing and binding the body and limbs of infants in the tight manner it was formerly done. Their dress should be light and easy, adapted in its materials and amount to the climate and season; and in the night, they should be kept comfortable, but not too warm. The dress should be fixed, as much as possible, with tapes, and not with pins; and, though a considerable extent of motion should be allowed to the limbs of infants, their hands should not be suffered to scratch their face and eyes. A flannel roller should be applied, but not too tightly, around the belly, for a protection to the navel, at which there is apt to occur a rupture, from the violent crying of the infant.

Purging of infants. The bowels of new-born infants contain a large

quantity of a dark, viscid, tenacious matter, which medical men call *mecconium*. In general, it is brought away by the first portion of milk which the child sucks, which acts as a purgative, and cleans the bowels more effectually than the sugar and water with which it is usual to cram a child the moment it is born, with great injury to its health.

When, however, it is retained too long, it may be productive of considerable inconvenience. In such cases, to give an injection of warm water, a little molasses and water, or a spoonful of perfectly fresh melted butter, will be proper.

Putting the child to the breast. In a few hours after delivery, if the labour has terminated naturally, the mother will be sufficiently rested to have the child put to the breast. This should always be done as soon as it conveniently can, even though the breast should, at the time, contain no milk. The milk first secreted, as we have already remarked, is calculated to relieve the infant's bowels from the dark viscid matter which they contain at birth; the nipple also is drawn out by the action of the child's mouth, and prevented from becoming imbedded in the breast, as this swells with the flow of the milk into its vessels; and painful affections of the nipple and breast are, in consequence, less liable to occur.

Temperature of the child's body. A young infant is peculiarly susceptible to the impression of cold. When exposed to too low a temperature, it not only suffers great pain and uneasiness, but its growth is liable to be stunted, and diseases of a most fatal character are often produced. Hence, its body should be kept comfortably warm by sufficient clothing, by a proper temperature of the room, and by washing it always in warm water. It is not only a ridiculous but a mischievous supposition, that the strength and vigour of an infant is increased by exposing it to cool or cold air, and by plunging its tender body in cold water. A robust infant may preserve its life through

such a course of treatment, but if the infant be delicate, it will most certainly perish.

Cleanliness. It is essential that the skin and clothing of a child be kept perfectly clean. It cannot thrive unless this be attended to. Hence, the necessity of washing it all over every day with warm water, and those parts of its body that may be accidentally soiled, even more frequently. Its clothes should be frequently changed, and always the moment they have become wet or have contracted filth from any cause; and the same clothes and diapers should never be put on it again, until they have been washed, and thoroughly dried. It is all-important that an infant be always kept quite dry.

Food of infants. For the first nine or ten months, the infant should be confined entirely to the breast of the mother, or to that of a healthy nurse. The pap which is given at an early period to infants, is apt to turn sour upon their stomachs, and to cause griping pains and disorder of the bowels. If at any time it is necessary to feed the child, it should be with fresh cow's milk, boiled with an equal quantity of water, and sweetened with loaf-sugar. Just before weaning, however, it may be necessary to accustom the child, by degrees, to other food than that of the breast. The best for this purpose, will be well baked stale bread or crackers, grated, and boiled in milk, soft plain custard, milk boiled and thickened with rice flour, a soft boiled egg, or beef-tea, thickened with grated bread or biscuit.

Air and exercise for infants. Nothing is of more consequence to infants than pure air, but they must not be exposed to the open air too soon; not for three weeks or a month, unless the weather be unusually fine. When infants are first taken out of doors, they should not be kept out long at a time; the person who has charge of them should walk gently, and be careful to avoid standing still, especially in a current of air. Exercise is also essentially necessary to infants. At first, the common operations of washing, and being

dressed, morning and evening, are sufficient exercise; the playfulness of a healthy infant, so delightful to its mother, and so readily indulged by it, accomplishes the same purpose. As the limbs get stronger, the exercise may be extended still further. All constrained postures, and long confinement in any one situation, should be avoided; and the infant should not always be carried on the same arm, nor be laid always on the same side. A healthy infant is fond of exercise. He should be moved gently up and down, but without any shocks. On this account, the modern cot is preferable to the cradle, for the child may be shook by the latter into a stupor, which an inconsiderate nurse will take care to do, as it saves her the trouble of attending to the infant's play. In dandling the child, great inconveniences arise from compressing the breast. When the child sits on the left hand, to prevent accidents, it is made to lean forward against the right, which is placed on its breast, and if the nurse is timid, or if the child starts, the only security is to clasp the breast, by which the ribs are often compressed. If, however, the right hand is placed under the arm, with the thumb over the shoulder, an active child may even start from the other hand without danger. The right hand will support it, or convey it gently to the ground. Swinging seems to give children an uneasy feeling; and even being carried quickly down stairs, will make them shrink to the nurse's breast. Gentle friction of the skin is an excellent addition to exercise, and peculiarly grateful to infants.

Fretfulness. A healthy child scarcely ever cries. This position, we know, will be disputed; and a child is said to be peevish, fretful, and uneasy, when the fault should be ascribed to the carelessness and inattention of the nurse. The dispositions of children undoubtedly differ; but the parent who finds a child constantly crying, should suspect her nurse, and even herself. One cause of this fretfulness is the opinion that the nurse knows when the child should

sleep, or eat, better than itself. It is forced to feed when not hungry, and to sleep when eager for play or amusement. We have often cured fretfulness in infants by correcting the attendant. It is sometimes the case that children will not sleep by night, but even this may be conquered by management; for the healthy child may be amused during the day, and his amusements may be gradually protracted till night approaches. Disposition and fancies show themselves very early in life to the attentive observer; and when reason has not yet attained its power, to correct them with violence, irritates without amending. Even at an early age, children may be soothed into regularity and obedience; they cannot be forced. If a child screams suddenly, or frequently, he is undoubtedly in pain or uneasiness from some cause, and should be carefully attended to. The fault will generally be found to consist in its having been over-fed, or upon improper food, or in want of cleanliness, or in exposure to a cold or impure air, or some impropriety in the clothing.

Cradles. Some physicians think it is very doubtful, whether the practice of allowing infants to sleep in cradles, be at all necessary or proper. They suppose that rocking always favours sleep, merely by inducing a certain degree of giddiness and determination to the head. Nothing certainly can be more absurd or dangerous, than the violent, long continued, and noisy rocking to which children are often subjected; and there cannot be the smallest hesitation about condemning this. Yet the cradle, in every nation, and from the remotest antiquity, has been so universally employed, and such countless multitudes of children have been rocked in it without any injury, that experience does not furnish a sufficient reason for prohibiting a careful use of it, whenever it may be thought convenient. All violent rocking, on hard and unequal floors, should however be avoided.

Swinging cradles are preferable to

those made with rockers. The usual covering made over the head of a cradle is improper, as it tends to prevent a free circulation of the air which the infant breathes; this is still further impeded, by the improper practice of hanging a curtain in front of the cradle.

WEANING.

Weaning, or the change of an infant's diet from the mother's or nurse's milk to solid and liquid food, is a circumstance of great importance with respect to his future health. The proper period for weaning will depend on the consideration of various particulars, as the state of the child's health, and that of the nurse; the condition of the infant, with respect to teething; the season of the year; the prevalence of epidemic diseases, &c. When both mother and child are in good health, there is no advantage gained by suckling the child above nine or ten months. If she is in delicate health, or is suffering from the effects of nursing, or of much debility, the child may be weaned even before that age. The winter is an inconvenient time for weaning, as the infant cannot be amused in the open air through the day, and is likely to be fretful during the long nights. The summer, likewise, ought to be avoided, particularly in cities. The heat predisposes the infant to bowel complaints, which are best prevented by confining it solely to its mother's milk. If the child is teething, and feverish, or uneasy in consequence, it is not proper to wean him, and thus add the loss of his accustomed gratification to the other sources of his annoyance. If the child is of a feeble constitution, or if the parents are scrofulous, consumptive, or otherwise unhealthy, the child should be nursed for sixteen or eighteen months, not, however, by its mother, but by another woman, of a healthy and sound constitution.

The great point to be attended to in weaning is, that it be not done abruptly, and that the child be duly prepared for being deprived of its milk, by having its stomach, for a considerable time

before, accustomed to different kinds of light wholesome food. For some weeks previous to weaning, it should be, in a great measure, fed upon spoon-meat, and the milk allowed should be gradually diminished. No harsh or disgusting methods should be used to make the child loathe the breast. If it be in good health, and be taken out in the open air during the day, and amused,—if its diet and bowels be properly attended to, it will soon cease to require the breast; of which, we suppose, it has for some time been daily more and more deprived. If the weaning be ill managed,—if it be too abrupt,—and if the food upon which it is fed do not agree with the infant, disease of the stomach and bowels, of a more or less dangerous character, may be the consequence.

When an infant is weaned, it is improper and unnecessary to give medicines, unless some urgent symptoms demand their use. The bowels should not be teased with laxative drugs, nor should opiates ever be given merely to stupefy the child, and keep it quiet during the night. When restlessness occurs, which will seldom be the case when the child is fed on light wholesome food, kept clean, and properly nursed; it ought to be taken out of bed, and carried about through an airy room. The child should early be accustomed to regularity in the periods for taking meat and drink; and of these, very little should be given during the night. Spirits and water, as well as wine or beer, should never be given to children on any pretence whatever.

After weaning, the food of infants should consist of weak beef-tea, panado, light pudding, and the various preparations of milk. Rusk biscuit ought, generally, to be used, instead of ordinary bread. Frequent exposure to the open air when the weather is favourable, and an increased degree of exercise, and perfect cleanliness, are highly beneficial to newly weaned infants.

MANAGEMENT OF CHILDREN.

The period of childhood is of great

importance, being the time when habits are formed, and the foundation laid for infirmities and diseases, that materially affect the comfort, health, and usefulness of the individual in after life. Children, in civilized society, cannot be left to the care of nature, like the young of the lower animals; but must be directed and controlled in many things, by the prudence and experience of those who are older and better informed than themselves. The principal points demanding attention are the regulation of the diet, sleep, clothing, cleanliness, and exercise.

Diet. Between the period of weaning and the seventh year, the diet should consist principally of farinaceous food, and milk; with a very moderate allowance of animal food once or twice a week; always taking care that it be dressed in the most plain and simple manner, with the rigid exclusion of all savoury sauces, or heating condiments; such as would either tempt them to eat too much, or be heating and irritating to the mouth and stomach, and that would raise a feverish excitement, or cause them to drink too much fluid. A soft boiled egg, rice or bread puddings, milk, sago, panado, or arrow-root, will form a pleasing variety in the diet of children. Oatmeal gruel has been the sole food of many a healthy and thriving child. Children may be allowed to eat perfectly ripe fruit in moderate quantity; the stone fruits, however, are objectionable, being very apt to produce bad effects on the stomach. Their drink should be plain water, milk and water, toast water, or whey. After the seventh year, when the exercise is more violent, and the rapid growth of the body requires more copious nutriment, the allowance of animal food may be somewhat more liberal; but through the whole period of childhood, and indeed almost throughout life, great quantities of animal food, or of butter, or smoked and stimulating food, should be avoided, together with all kinds of pastry, made dishes, and their sauces.

Bowels. To keep the bowels of

children in a healthy and regular state, is a matter of the utmost consequence. They are themselves too apt to neglect the calls of nature, not being aware of the great importance of regularity in this respect; those who have the care of them, should very frequently inquire as to the state of their bowels, and not suffer them to go beyond one day without a stool. Female children, particularly, should be much attended to by their seniors. Costiveness is one great cause of ill health in females; and the acquirement of regular habits, with respect to their bowels, is to them exceedingly valuable. Laxative medicines should not be given, however, unless in case of actual sickness, or a very evident threatening of it. The diarrhoea of children should not be neglected; it very often arises from cold caught by being too thinly clothed; or from improper, or too much food. Suspending the usual diet, and confining the child to rice-water, sweetened with loaf-sugar, the occasional use of the warm bath, and a proper warmth of clothing, will often be sufficient to check the disease.

Sleep. Children generally take a great deal of rough and boisterous bodily exercise; and during their education, their minds too are pretty much employed; all which circumstances occasion considerable fatigue and exhaustion, so that it seems quite proper to allow them a due share of sleep; from eight to nine, or ten hours at least. But it should be at proper periods; and they should not be allowed to doze and saunter during their waking hours. When fatigued with play, children should never be allowed to fall asleep on the grass, in the open air, or exposed to a draft; as disease is liable in this manner to be caused.

Clothing. Children should have their dress accommodated to the season; and a due degree of warmth should always be kept up. It is wrong to expose them to cold in order to harden them; nevertheless a proper degree of exercise in the cold air should be taken. The great evils to be avoided are, cold

accompanied with moisture, and any check to perspiration; which boys too often sustain, by throwing themselves down on the moist ground, when heated by their games. Flannel next the skin need not be ordered for healthy children; but where there is much tendency to catch cold, or to have loose bowels, or where there is continual paleness of the skin, and weakness of the system, it will be prudent to make children wear flannel. Much care should be taken to have the feet always warm and dry; and to make them change their shoes and stockings as well as their clothing generally, whenever they get wet. The clothing of children should be perfectly loose and commodious—when any part of the clothing compresses the body, or interferes with the free movements of the limbs, a deficient growth and the occurrence of deformity are endangered.

Cleanliness. Children should very early be taught the necessity and importance of cleanliness. They should be made to keep not only their skin but their hair, their teeth, and nails in good order, as this not only promotes their own health and comfort, but renders them agreeable to all around them. The hair of children should be kept short and thin. It is of the utmost consequence to keep the skin very clean, as this tends to prevent many of the cutaneous diseases which are so common with children, and which when they do occur are so disgusting and troublesome. The frequent use of the tepid bath, will promote the growth and health of the body, will lessen the susceptibility to cold, and will strengthen the feet, and render them less liable to chilblains. Sea bathing, and swimming at proper seasons, and in safe places, are excellent both for health and cleanliness. Cleanliness is not without a degree of moral influence; it has been very properly styled one of the minor virtues.

Exercise. Children when in tolerable health, and not of an indolent disposition, seldom require to be urged to

take exercise; they are rather inclined to take too much, and too violent, and need a little regulation and superintendence in this respect. The practice of gymnastics, or dancing, is a good exercise; and girls should use the skipping ropes. When out of doors, children should be allowed to choose their own amusements, and interfered with only when they are in danger of doing any thing unbecoming, or hurtful to themselves or their companions. Even girls should have ample scope in their play; time, and their own sense of propriety, will soon enough correct any tendency to improper romping. By this means their health will be promoted, and their figure expand; and it is better for them to possess a sound constitution and an active frame, than to be celebrated for proficiency in drawing or music, before the age of twelve or thirteen.

Though a prudent direction ought certainly to pervade the whole management of children, yet it ought not to be carried too far; and it is seldom observed, that they who refine the most in education, are the most successful in attaining their object; or that the subjects of rigid and unbending regularity, are the healthiest, or the happiest children. The precise walk of just an hour, and no more, on a line or circle from which they must not deviate, cannot convey the same health to their frames and exhilaration to their spirits as the cheerful, free, and expatiating ramble which youth would take for themselves.

We would take this opportunity of recommending to parents, not to hurry the education of their children, nor on that account to confine them too much in one posture, secluded from the open air, and deprived of the exercise which the salutary dictates of nature impel them to delight in. They should often be permitted to change their attitudes, and even sometimes to lie down on the rug or sofa. Awkward habits must be checked; and when there is any tendency to deformity, machinery may be requisite; but it should be simple and light, and always under the direction

of a skilful and upright medical man, who has made the mechanism of the bones and joints of the human body an object of careful study.

NURSES.

In very many cases, a woman is unable to nurse her own infant, from deficiency of milk, from weakness, disease, or other circumstances; and many women in the more opulent ranks of life decline the task from a dislike of the drudgery. In these cases, it becomes necessary to bring up the infant with the spoon, or to hire a woman who is nursing. It is a difficult matter to bring up a child without suckling it, and, therefore, the qualifications of a hired nurse are of great consequence. She should not be too young or inexperienced; she should be of a healthy appearance; with good teeth; without any disease or weakness of the eyes; of temperate and cleanly habits, and of a mild and amiable disposition; her milk should be plentiful, and her own child, when it can be seen, should be ascertained to be thriving, and to have been nourished chiefly by its mother's milk. The milk should not be too old, as compared with the child she is to suckle; it is wrong to allow a newborn infant to be suckled on milk several months old. Nurses should be of a cheerful temper and pleasant countenance, and of an active obliging disposition; they should take a share of the work of the house, that they may not become corpulent or lazy. It is a great recommendation to a hired nurse when she has already been employed with credit in that capacity; and it should be a general rule, though not without exceptions, that women should not be hired as nurses when suckling their first child. It should be a stipulation in every engagement of a nurse, that if the child does not thrive, and if her milk does not prove sufficiently nourishing, her engagement is to be at an end.

NURSING.

As nature has prepared, in the pa

rents of all animals of a certain form, a mild and wholesome fluid for the nourishment of their young, so it is evidently her dictate that each mother should suckle her own child. The advantage of this practice, both to mother and child, have been eloquently insisted upon by a variety of writers; and with the exception of those who are absorbed in luxury and dissipation, almost every mother is anxious to nurse her own child. But there are many causes which prevent this from being done. Peculiar delicacy of constitution or disease in some, or wrong conformation of the breasts or nipples in others, may render it impossible for them to nurse their children; the residence or avocations of others, whether voluntary or constrained, may be such as to render it an act of great cruelty to the child to attempt supporting it by the mother's milk. No substitute for milk is to be found in spoon-meat or other expedients, and, therefore, the child should, whenever circumstances will permit, be fed entirely, or in part by the milk of another woman.

When a woman in health nurses either her own child or another, the best way of ensuring a plentiful and regular supply of milk, is to follow the mode of life best adapted to promote good health at any time; by being regular and temperate in her diet, not eating at irregular times, nor in undue quantity, and by no means indulging in drinking large quantities of beer, porter, ale, or gruel. Exercise should be taken, and all inactivity and indolence are to be avoided. The child should not be allowed to sleep with the breast in its mouth, nor to overload its stomach by sucking too much at a time. It is of great utility to begin very early to teach the child regularity in the periods of taking the breast.

SECTION XI.

DISEASES OF ARTISANS.

THE occupation of each individual influences to a certain degree his health.

If his occupation be of a sedentary nature, carried on within doors, he will experience all the inconveniences resulting from the want of sufficient exercise and pure air, superadded to others caused by the constrained position in which his body is kept for the greater part of the day. If, in addition to his confinement and inactivity, his occupation be carried on in a crowded, ill-ventilated apartment, or in an atmosphere loaded with dust or irritating effluvia, his health will suffer in a still greater degree, and disease of the stomach or lungs be very quickly produced. Occupations which demand considerable muscular exertion, and are carried on in the open air, are the most beneficial to health. Even these, however, may become prejudicial, either from inducing too great a degree of fatigue; by exposing the individual to the vicissitudes of the atmosphere; by calling the different muscles into unequal action, some being constantly exercised while others remain perfectly quiescent, or by the bent and constrained position which they impose upon the body. Employments are often rendered more destructive to health by the neglect and want of personal cleanliness, and the intemperate habits of those engaged in them. Every species of occupation, even the most unwholesome, may, by proper care, by the adoption of certain precautions, and an attention to a few simple rules, be rendered less unfriendly to health than what it is ordinarily found to be, when such precautions are neglected. The following brief sketch of the effects upon the system of the more prominent trades and occupations pursued in this country, will, we are persuaded, be interesting to the reader, and lead the artisan to the adoption of such measures as will, in a great measure, guaranty his system from injury.

Bakers. Bakers are very generally pale and unhealthy. They are liable to disorders of the stomach, cough and rheumatism. The two former may arise from the dust which is almost

constantly inhaled, in connexion with the frequent and sudden changes of temperature to which they are subject, and their loss of rest at night. The latter are also the cause of the rheumatic affections so common among them. The hands of bakers are very apt to be affected with a species of itch, caused, no doubt, by the irritation of the skin by the paste and dough in which they work.

Book-binders, when temperate, are not subject to any particular disease arising from the nature of their employments. They suffer, however, from confinement within doors, the want of proper ventilation in their work-shops; and the finisher sometimes experiences inconvenience from the fumes of the charcoal, with which he heats his tools.

Braziers, and workers in brass, generally, are liable to diseases of the lungs and stomach, from the fumes of the melted metal, and the particles which are given off in filing. These might very readily be avoided by proper flues to carry off the fumes as they arise, and by covering the mouth and nostrils of the workmen, engaged in filing or turning, by a fine net-work of wire.

Brewers, although frequently subject to catarrhs and rheumatism from cold and wet, and sudden alterations of temperature, and occasionally to injury from the carbonic acid gas, given off during the fermentation of the malt, are less injured by their employment, than by the free use they too often make of beer and porter.

Brush-makers are generally healthy in proportion as they are temperate. The chief inconvenience of their employment arises from its being sedentary, from the dust arising from the bristles, and the gas from the charcoal fires, with which the pitch they use is heated.

Brick-layers. The chief of the diseases to which brick-layers are subject, are produced by their exposure to the direct rays of the sun in summer, and to the dust of lime. The latter often

causes the eyes to become inflamed, while the action of the lime upon the hands, gives rise sometimes to diseases of those parts. Upon the whole, however, when temperate, brick-layers experience but little inconvenience from their employment, and are generally a robust, healthy class of mechanics.

Brick-makers have the advantage of full muscular exercise in the open air, and, generally speaking, are healthy and robust. When incautious, in regard to improper exposures, they are subject to rheumatism, agues, and other diseases, from the cold and damp, or wet, to which they are often subjected.

Butchers. Their occupation is decidedly favourable to health. The diseases to which they are generally exposed, arise from too full a diet of animal food, and intemperance. Butchers are less liable than almost any other class of men to the attacks of epidemical diseases.

Cabinet-makers. The only injury they suffer from their employment, is caused by their confinement within doors, and the want of proper ventilation in the work-shops. Irritation of the lungs, and cough, are sometimes induced by the dust made in sawing and scraping the wood on which they work. Occasionally, by working too constantly in a bent position, they suffer from disease of the lungs and stomach.

Carvers and gilders. The sedentary and confined nature of their employments, and the leaning position of the body which these require, cause injury to the stomach, and a general reduction of the health and vigour of the system. Gilders of metal, in general, suffer severe diseases from the fumes of the quicksilver which they employ.

Carpenters. When temperate, suffer not the least inconvenience from the nature of their business.

Coachmen. When temperate, their general health is but little injured by their employment. Exposure to the wet and cold, causes them to be more or less subject to inflammatory affections of the lungs, chest and limbs, and

from the posture of their lower extremities, they are liable to swelling of the feet, enlargement of the veins of the legs, and to a diseased condition, attended with swelling, of the large artery in the ham.

Cooks are often exposed to considerable transitions of heat. Their digestive organs are frequently impaired; they are, also, liable to inflammations and other diseases of the eyes, to an over-fulness of the venous system of blood-vessels, head-aches, &c.

Coopers have considerable muscular exercise, and generally speaking, experience little inconvenience from the peculiar nature of their employment. Lads on first entering upon the trade, suffer from affections of the head, and a dullness of hearing, occasioned by their stooping position, and the noise to which they are subjected. The hearing is often permanently affected; and the stooping posture often occasions pains in the loins.

Coppersmiths. From the fumes emitted by the heated metal, workers in copper, in general, suffer from disorders, similar to those of the brass-founders.

Curriers. The occupations of the currier are in no ways injurious to health; if we except such of them as require a bent position of the body, these, when long pursued, constantly injure the stomach, and cause pains of the head.

Dyers. The principal diseases to which dyers are liable are rheumatism, catarrhs and inflammations of the lungs. The fumes from several kinds of dye, especially that containing Prussian blue, are apt to cause soreness of the eyes, and to prove distressing to the lungs. Upon the whole, however, dyers, when temperate, may be considered as healthy, and long-lived.

Gardeners. Gardening is unquestionably one of the occupations the most friendly to health. Gardeners, however, are liable to a painful affection of the small of the back, occasioned by working too long at a time in a stooping position.

Glass-workers being exposed to sudden alternations of temperature, are liable to suffer from colds, rheumatism, and other inflammatory affections. The fumes of the lead and arsenic to which they are not unfrequently subjected, also, occasion injury to their health. Glass-blowers, from the brilliant light to which their eyes are so much exposed, suffer often from cataract. They are said, likewise, sometimes, to die very suddenly.

Glue-makers enjoy, generally, very good health. Their diseases are the effects either of intemperance, or exposure to wet and damp. Pains in the loins are frequent among them, from continuing too long in a stooping posture.

Grocers. The only disease to which grocers are especially subject, is a species of itch, with which their hands, when these are frequently immersed in sugar, molasses, &c. become covered.

Hatters are often incommoded by the vapour from the vat, and from the bent position of their body while at work. They are liable to cold and rheumatism, from imprudent exposure to the open air, when in a state of perspiration, caused by the heat and steam to which they are subjected. From the acid in which their hands are frequently immersed, their nails, and the ends of their fingers, are apt to be corroded and sore.

Iron-workers. The principal occupations of those who work in iron, which are injurious to health, are *filing* *dry grinding*, and *casting*. The two first are peculiarly injurious from the dust and fine particles of the iron cast off by the file and stone, finding their way into the lungs, and there exciting and keeping up an irritation, attended with difficulty of breathing, cough and expectoration. If these occupations be habitually pursued for several years, consumption of the lungs very generally ensues. The injurious effects to the health, attending these occupations, might, in a great degree, be prevented by a proper covering to the mouth and nostrils. *Founders* suffer chiefly from

sudden alterations of temperature, causing catarrhs, rheumatism, and inflammation of the internal organs; these complaints are far more apt to occur to the intemperate than to the temperate.

Malsters are exposed to a good deal of dust, to carbonic acid gas, and other injurious exhalations, and to sudden alterations of temperature. They seldom enjoy very good health; many suffer from asthmatic affections, and from catarrhs and rheumatism.

Masons. While the active exertions of this class of mechanics, carried on in the open air, render their bodies muscular and robust; they are liable to diseases of the lungs, and consumption, from the fine particles of stone inhaled by them; exposure to wet, also frequently causes in them catarrhal and rheumatic complaints. When intemperate, they are most commonly short-lived.

Millers. In consequence of their breathing almost constantly an atmosphere loaded with fine dust, they are generally pale and sickly, with impaired appetite, and imperfect digestion—many labour under cough and expectoration, and others under an asthmatic complaint.

Painters suffer much from the effects of the different oxydes of lead which they employ. They experience dizziness, indigestion, vomiting, and costiveness; they have an unhealthy look, and are liable to a violent form of colic, known by the name of the painter's colic, which either terminates in death, or in a particular kind of palsy. The less temperate the individuals who work in the paints obtained from lead, the more liable are they to these affections.

Paper-makers are liable to diseases of the lungs, from inhaling the dust arising from the rags among which they work, and from the fumes produced during the process of bleaching. Their necessary exposure to damp and wet, causes them to suffer occasionally from colds and rheumatic pains.

Plasterers chiefly suffer from colds and rheumatic affections, caused by the dampness of the atmosphere to which

they are exposed. The lime-dust sometimes affects them, causing soreness of the eye-lids, and inflammation of the eyes.

Plumbers are liable to suffer in the same manner as painters, from the fumes of the lead.

Potters are liable to the same diseases as painters and plumbers, from the effects of the lead used in the glazing of the common kinds of earthenware.

Printers, for the most part of the day, live in a confined atmosphere, and are deprived of that kind of exercise which calls equally into action the different muscles of the body. This is particularly applicable to compositors, who also suffer from the fumes emitted from the heated types—their upright position maintained for many hours, without interruption, causes a swelling of the legs, and enlargement of the veins of these parts. The constant application of their eyes to minute objects, gradually impairs their powers of vision. Their digestion is very generally disordered. Pressmen have active and varied labour—still, however, they seldom enjoy uninterrupted health. There is scarcely any class of mechanics among whom consumption of the lungs is of more frequent occurrence than among printers.

Rope-makers, when temperate, suffer no particular disease from the nature of their employments.

Saddlers, from their confinement within doors, and the bent position of their body while at work, are subject to head-ache and indigestion, unless proper care is taken to counteract these effects by regular and sufficient exercise in the open air.

Shoe-makers. Confined for the greater part of the day and night within rooms, often filthy, crowded, and ill-ventilated; placed, whilst at work, in a posture by which the chest is contracted and the contents of the abdomen, especially the liver and stomach, are unduly compressed, and being also too often addicted to habits of gross intemperance; there are few classes of

mechanics in whom health is so much impaired by their occupation as it is in shoemakers. Digestion and nutrition are imperfectly performed; the skin assumes a sallow hue, and the whole countenance presents so strongly the marks of disease, as almost to distinguish, at first view, the shoe-maker from all other artisans. Shoe-makers are, likewise, very subject to consumption of the lungs.

Shop-keepers live in a confined atmosphere, and their occupations are a compound of the active and sedentary, with generally more of the latter, however, than of the former. They spend the day behind the counter, in a standing posture, with sometimes long intervals of sitting, or of total inaction between the calls of their customers. Their meals are taken often at irregular intervals, and though they occasionally move about a good deal, yet this does not communicate to their frames the beneficial effects of active exercise; hence, shop-keepers are commonly troubled with indigestion, and a general languor of the functions of life.

Smiths have an employment highly conducive to muscular power. The use of the sledge exercises powerfully the muscles of the arms and trunk, increasing their development and strength. Their lower limbs, however, are less actively exercised. When temperate, smiths are a robust and healthy class of mechanics.

Starch-makers suffer most from the dampness to which they are exposed. Cough and irritation of the lungs are sometimes produced, by inhaling, for too long a time, an atmosphere overloaded with the fine dust from the starch.

Students are not necessarily unhealthy. Their health only suffers when they neglect the ordinary means for maintaining and improving it. With sufficient exercise, proper diet, regular hours of sleep, and habits of early rising, students may enjoy a degree of health, equal to that of any other class in society. When, however, the day and night are spent in a sedentary position, and in a confined atmosphere—

when their minds are too long and unduly excited by close application to study, and their stomach is constantly irritated by too much, or improper food; their digestion becomes impaired, the circulation of their blood sluggish and irregular, their skin pale, their feet cold and numb—the blood of their system is no longer elaborated properly, and nutrition is imperfect. They feel weak, languid, and depressed, and their bodies either waste away or become plethoric from an excess of impure blood.

Tailors. The sedentary habits, and awkward and constrained situation of the body whilst at work, very quickly impair the health of this class of artisans. Their digestion, the circulation of their blood, and their respiration, are all equally impeded. The injury which they thus sustain, is often increased by their working in crowded, ill-ventilated apartments, and by habits of intemperance. Dyspepsia, and various other disorders of the stomach and bowels are frequent among them, and generally very obstinate. Pulmonary consumption, also, destroys many of them. Apprenticed at an early age, tailors have not unfrequently their constitution so modified as to resist, in some measure, the injurious effects of their occupation; but its vigour is always impaired, and existence is very generally terminated before the usual period. The means to prevent the injurious effects here detailed, are active exercises in the open air. Two or three hours spent in a gymnasium, daily, would be highly beneficial—as well as large and well-ventilated workshops—a mild nourishing diet, and such a position of the body whilst at work, as will prevent the curving forwards of the spine, and remove all pressure from the chest and abdomen. To obtain this position, it has been proposed to make a round opening in the board, on which the work is laid, of the circumference of the body, and to have a seat placed below this, for the workmen to sit on.

Tallow-chandlers do not appear to suffer the least inconvenience from their occupation.

Tanners, with the exception of occasional colds and rheumatic affections, from the cold and damp to which they are exposed, are, in general, a healthy and robust set of men.

Tinmen, when temperate, and not too long confined in ill-ventilated workshops, enjoy generally good health.

Tobacconists suffer from confinement, from sedentary habits, and from the fumes and fine particles of tobacco with which the atmosphere they breathe is occasionally loaded. Hence, they are often sufferers from dyspepsia, head-ache, and from a chronic cough, and irritation of the throat. Nevertheless, when temperate, and using daily sufficient exercise, they suffer less in health than would at first be presumed.

Turners suffer principally from the inhalation of the fine dust given off from the wood in which they work, and from the standing and bent position of the body, when this is too long continued. Temperance and exercise, in the open air, are fully sufficient to prevent any

inconvenience from the nature of their occupations.

Watch-makers, from the sedentary and bent position in which they work, and their confinement within doors, have their digestive powers impaired, and their vital energies reduced. And from the constant exercise of their eyes, in the close examination of minute objects, their powers of vision are materially injured. So far as the health of their body is concerned, this could be easily maintained by regular, daily exercise in the open air.

Weavers work in a confined damp atmosphere, generally loaded with minute particles of cotton, flax, or wool. Though their limbs are fully exercised, the trunk is kept comparatively fixed, and the chest is not fully expanded. Their bodies soon acquire an habitual stoop; their digestion is most commonly imperfect, and asthma and diseases of the chest are not uncommon among them. They frequently, however, when temperate, though with an impaired state of health, live to an advanced age.

PART III.

MATERIA MEDICA;

OR,

THE REMEDIES EMPLOYED FOR THE CURE OF DISEASES.

MATERIA MEDICA.

EVERY substance employed in the cure of diseases, whether in its natural state or after having undergone various preparations, belongs to the *materia medica*, in the extended acceptation of the term. But in most systems of *materia medica*, the articles described are those medicines which are not prepared usually by the apothecary himself, but commonly purchased by him, as articles of commerce, from druggists and others, referring the preparations formed from these, and their remedial agents, which contain a mixture of different medicines, to the lists of the *pharmacopœia*. In the present portion of our work, however, we propose to give an account of all the more important remedies necessary for the cure of diseases.

MEDICINES.

Medicines are those substances which are introduced into the stomach, with the intention of producing certain effects, for the cure of disease or the preservation of health. Substances applied externally, are more generally termed *applications*, or *remedies*. Medicines are obtained from all the various kingdoms of nature, and are used either simply or combined together. Their doses are to be regulated according to

the circumstances of each individual, with respect to age, sex, temperament, strength, peculiarity of constitution, &c. as well as the nature, stage, and violence of the disease under which they are labouring. The doses of medicine for children under twelve years, are to be diminished to one-seventh, one-fifth, one-fourth, one-third, one-half, respectively, at two, four, six, eight, and ten years; from sixteen, in general, the full dose may be given. Some medicines, as calomel, do not make the same impression on children as on adults, and therefore are not to be diminished so much. Women in general require smaller doses than men; but of purgative medicines, many require a good deal more. When a person has been accustomed to a medicine, he in general loses his susceptibility of being affected by it; but some medicines appear to have their action more easily excited by habit. When a person has been weakened by the long duration of a disease, medicines must be ordered in smaller doses than at the commencement of it. Some medicines only act more certainly when given in large doses, but not more violently; this is the case with *ipecacuanha*, and *aloes*. The same medicines vary in their activity; and this must be taken into the account, when a fresh parcel of such medicines is commenced with; thus,

if we are giving fox-glove, it will be right to begin with a diminished dose of the new portion. The effects of some medicines seem to accumulate in the system; this is remarkable of fox-glove, and sometimes of mercury; we must not, therefore, always continue to give the medicine till we have some proof of its entering the constitution; but, after continuing it for a period, its further use must be discontinued, until we can ascertain absolutely the effects likely to result from that already given. Some persons have very remarkable peculiarities with respect to the operation of certain medicines; being either very violently or unusually affected by very minute doses, or not experiencing the ordinary effects of the remedy, excepting when it is given in greatly increased doses. When this can be known beforehand, we of course are very cautious in, or entirely avoid the use of those medicines, with such patients.

Times of administering medicines. There are certain times of the day more convenient than others for giving some medicines. Purgative medicines should, in general, be given late at night, or early in the morning; the bowels not being so easily acted upon during the time of sleep: hence, pills and other medicines which do not act speedily, when given in the evening, have time to dissolve fully, and to produce their due effect on the bowels. Saline purgatives are best given in the day time, that the cooler state of the surface may determine their action to the kidneys. Emetics, in slight feverish disorders, are best given in the evening, as they produce tendency to sleep and perspiration, which are best encouraged by retiring to bed. Medicines for perspiration should not be given during the process of digestion.

QUACK MEDICINES.

The visionary projects in which the alchemists, for so many centuries, spent their time and fortunes, were the art of transmuting the baser metals into gold, and the discovery of a medicine

which was to secure health and immortality upon earth. The first of these is now given up as hopeless; but if we may credit the lofty pretensions of our empyrical medicine-venders, the latter is obtained, if not by one, at least by the combined or successive use of several, of their nostrums. There is no disease of dreaded name, for which these oracles cannot furnish an easy and certain cure. Asthma and consumption are, according to the unblushing statements of such persons, disarmed of their terrors, gout is now but a harmless bugbear; and if any suffer or die of cancer, it must be the fault of their own obstinacy or incredulity. The diseases of childhood need give little concern; there are anodynes which allay the pain of teething; there are worm lozenges which no reptile can resist; there are washes which infallibly cure and beautify the skin, and drops which remedy in an instant every diseased condition of the bowels. Laborious investigation of disease is unnecessary; the doctor does not need to see his patient; the latter has only to send a letter describing his case, with the usual fee, and the remedy will meet him in the remotest corner of the union. Even this slight degree of trouble may often be dispensed with; a patient has merely to consider for himself, whether he is bilious or nervous, whether his skin or his bowels are in fault, whether he needs stimulants or evacuants; and pills, and cordials, and balsams of unerring efficacy, are to be found in every city and village, ready to his hand. Of the truth of these statements there can not be a doubt, as numberless cures are attested by those who have tried them; and whose benevolence prompts them to publish, for the benefit of mankind, the advantage they have experienced in themselves or their families.

The credulity and confidence of those who give their testimony to the benefits which they think they have seen to arise from quack medicines, is equalled only by the impudence and trickery of those who sell them. The attestations to the good effects of panaceas, catholicons,

and other infallible nostrums, though honestly given, are given in ignorance. A person is afflicted with a certain combination of symptoms, to which medical men, or the common people, assign a distinctive name, as fever, dropsy, scurvy; he recovers his health after the use of some particular medicine, and is perfectly convinced that it was the medicine alone that cured him. He rejoices in its success, and confidently recommends the same drug to his friend, who is said to labour under the same disease. But there is here a double fallacy. The first patient cannot be sure that he had the disease which he supposes, and he cannot be certain that the remedy cured him. And as it is doubtful whether the second patient is afflicted in a similar way, the same medicine may not be applicable to him.

When we consider the endless variety of the human constitution; its delicate and almost evanescent changes, in health and disease; the difficulty, in a large number of cases, of tracing the symptoms under which the patient labours, to their causes; it must be obvious, that no one remedy can be equally adapted to every case; that a remedy which will suit one constitution may be very unfit for another, and that a medicine which to-day is salutary, may be attended with disastrous results if repeated to-morrow, under *apparently* precisely the same circumstances. In popular language, and even in the language of physicians, it may be said with truth, that ten persons have the same disease, as small-pox, fever, or a cold; but it will require correct and accurate observation, to discriminate the differences in the case of each, and to apply the remedies which are proper to them. But by the very same panacea, and in precisely the same dose, eighty thousand cases of every species of disease, are said to be cured in a year; and patients indiscriminately are invited to apply a composition, in different cases, and under different circumstances, in which perhaps a skilful physician would consider totally opposite remedies to be necessary.

There is something in the moral aspect of a secret remedy that ought to put mankind on their guard against it. The possession of health is to all so valuable, and to the poor so necessary; pain and suffering are so dreadful, that it is the duty of every one to communicate freely, every assistance in his power to relieve it. With all the industry and accumulated knowledge of ages, there are too many diseases which baffle all the skill of the profession; and there must be something suspicious about those who, affirming themselves to be in possession of an infallible remedy for cancer or consumption, conceal the knowledge of it in their own bosoms.

There are some useful and esteemed medicines, which at first appeared under the disreputable form of secret remedies. Some quack medicines also are harmless and insignificant; but commonly their only effect is to amuse the patient with delusive hopes, and to trifle away the time during which the constitution could bear the employment of active remedies. In other cases, by the alacrity and hope which they inspire, they may impart a salutary energy to the mind; and hypochondriacs may be brought to use a rational system of exercise and diet, while they expect every thing from their boasted specific. Some secret medicines are merely those which every physician prescribes, and every druggist sells; but which quacks disguise, and sell at an enormously increased price. There are numerous instances of patients labouring under chronic diseases, when they have taken, upon the prescription of the regular physician, certain remedies, declaring themselves to have received no possible advantage from their use, but who, when they have taken precisely the same articles, procured from the quack, and by him distinguished by some high-sounding and imposing name, readily certify to their surprising effects; which shows the nature of that delusion upon which the empiric always depends for his success. But there are other kinds of

quack medicines of a more dangerous tendency, and against which the ignorant and credulous should be put carefully on their guard. Such are all those which profess to be an infallible cure for cancer, or scrofula, which promise to cure syphilitic complaints, without the use of mercury, and those which cure colds and consumptions. Arsenic is the basis of all the anti-cancerous remedies; and arsenic, even when applied externally, is often destructive of life. The anti-syphilitic drops, and a host more of such compositions, contain, as their active ingredient, the corrosive sublimate of mercury; which, from its being easily disguised, and of great activity, is very convenient for the purposes of empirics, but proportionally dangerous for the ignorant to employ. The cures for colds and consumptions are almost all compositions containing opium, the quack's sheet-anchor, as Dr. Paris calls it. This enumeration is enough to show the absurdity of the pretensions of these and similar medicines; and it shows the danger run by those who venture to use them, without a knowledge of the tendency to inflammation of the lungs, which accompanies a great proportion of the colds of this country.

Credulity, with respect to quack medicines, is peculiarly dangerous in the nursery. Parents should rarely prescribe medicines themselves to their children, and should rigorously prohibit the administration of them by servants. No secret medicine, however excellent, should form any part of the nursery store; and the ailments of children, however slight, should, as soon as possible, be put under the care of the medical attendant. Parents should know what is proper to be done on any sudden emergency, as in the case of burns, wounds, or contusions; they should understand the most useful measures to be pursued in convulsions, or screaming from pain of the bowels, or on the first attack of croup; but they should not suffer many hours to elapse without consulting the family physician.

SPECIFICS.

A medicine is said to be a specific, when it almost universally cures a particular disease, without our being able to trace the manner in which it operates. Thus, the peruvian bark is said to be a specific in intermittent fever, and sulphur in the cure of itch. Strictly speaking, there is however no such thing as a specific among medicines. The belief in their existence has done much harm in retarding the progress of medical knowledge, and has caused active remedies to be administered for the removal of certain symptoms, in diseased states of the body, when their effects are highly prejudicial. The name of a disease being given, as for instance, fever, scrofula, measles, &c.; no physician can determine the medicines that will be proper for its cure, until he has seen the patient, and examined carefully into the condition of all his organs, the stage of the malady, and the age, sex, and constitution of the individual in whom it exists. The very course of treatment that may be demanded in one case of the same disease, may be altogether unadvisable in another.

SECTION I.

CLASSIFICATION OF MEDICINES.

ABSORBENTS, OR ANTACIDS.

Medicines administered to counteract acidity in the stomach and bowels, are called absorbents, or more properly antacids. They produce their effects by combining, chemically, with the acid existing in the alimentary canal. A neutral salt is formed by the union, which produces a laxative or binding effect, according to the absorbent used. Thus, magnesia when it combines with an acid in the stomach, will form a salt, the action of which, upon the bowels, will be gently laxative; but, if prepared chalk be taken, the salt produced will have a tendency to arrest

the evacuation of the bowels, and occasion costiveness. The state of the bowels is hence to be attended to, in determining our choice of the article to be given. Absorbents are administered in various diseases, attended with that morbid condition of the stomach, upon which heart-burn and sour eructations are a frequent and troublesome attendant. They are frequently combined with tonics. The principal absorbents are the alkalies, both fixed and volatile, and the alkaline earths.

This class of medicines are useful for removing present disagreeable symptoms; but the return of such symptoms can only be prevented by restoring the healthy action of the stomach and other organs, by the avoidance of all articles of diet which are liable to produce acidity, and when there is nothing present to forbid it, by regular active exercise, together with frictions to the skin.

ALTERATIVES.

Any medicine which, in certain doses, works a gradual cure, by restoring the healthy functions of different organs, without producing any unusual evacuation, may be called an alterative. The term, however, is objectionable, since all medicines, in a certain sense, are alteratives. Alterative medicines are used principally in the treatment of chronic affections of the stomach, bowels, liver, skin, and lymphatic glands. They consist chiefly of small doses of mercury, or antimony, different preparations of iron, hemlock, belladonna, cicuta, mezereon, guaiacum, sarsaparilla, iodine, medicated baths, &c. Alteratives will produce, however, but little benefit, if the constitution is not at the same time improved by the judicious employment of a proper diet, air, exercise, and clothing.

ANODYNES.

Anodynes are medicines which relieve pain. Another name by which they are known is *narcotics*, from a Greek word, which signifies stupor; and this may be considered as the generic term; while the various narcotics

receive specific names, according to the effect most strikingly produced by them. If they induce sleep, they are called *hypnotics* or *soporifics*; if they diminish the rapidity of the circulation, or the activity of the general system, they are called *sedatives*; and from the circumstance of their being used to diminish the sensibility of pain, they are called *anodynes*. The substances possessed of narcotic, and, therefore, of anodyne properties, are very numerous. The following are some of them: opium, henbane, hemlock, camphor, foxglove, tobacco, stramonium. Of these, one of the most useful is opium, in some of its various shapes.

Great care must be taken not to give anodynes from the mere circumstance of pain being experienced. A person may have an acute pain of the side, from inflammation of the lungs; or of the bowels, from inflammation of those organs: in such cases, the true anodyne is a large bleeding; and a dose of opium or gin, so frequently given on such occasions, would be destructive of life.

ANTHELMINTICS.

Medicines which have the power of destroying worms, or of procuring their evacuation from the intestines, are termed anthelmintics. The greater number of these medicines act mechanically, dislodging the worms by the sharpness or roughness of their particles, or by their purgative operation. Some seem to have no other quality than that of a powerful bitter, by which they either prove noxious to the worms, or remove that state of the digestive organs favourable to their generation. Some act both as poisons to the worms, and as purgatives. The principal articles of this class, are aloes, calomel, and the principal cathartics; iron-filings, and the principal cathartics; iron-filings, cowhage, tin-filings, cabbage-tree bark, Carolina pink, male fern, wormseed, assafoetida, turpentine, common salt, and tobacco.

Anthelmintics ought not to be resorted to upon the mere presumption of the existence of worms in the in-

testines. Many of the symptoms, popularly ascribed to worms, arise from a diseased condition of the stomach and intestines, the presence of which would render the administration of worm medicines injurious. Even when worms do exist, inflammation of the bowels, or some other affection, may, at the same time, prohibit a resort to anthelmintics. It may very safely be asserted, that children who are kept clean, allowed sufficient exercise, and pure air, with good wholesome nourishment, are seldom troubled with worms.

ANTIDOTE.

An antidote is a medicine which has the power of counteracting the injurious effects of some poisonous substance taken into the stomach, or otherwise introduced into the system. The perfection of an antidote would be, that it should instantly and infallibly prevent all mischief from a poison; that the poison and the antidote, when both swallowed, should place the person in the same state as if he had swallowed nothing at all; or that if he persisted in a long course of antidotes, he should, like Mithridates, be incapable of suffering by poison. But, in reality, we possess very few such antidotes. In our laboratories, or vessels, a poisonous mineral or vegetable production may, by the addition of another substance, be so changed, that the new product would be quite harmless to the body; but too often the poison swallowed has begun to exert its destructive effects before the antidote can be applied, or the living powers of the stomach may prevent the chemical decomposition that would otherwise take place. A metallic acrid substance may be swallowed, and may produce not only the corrosion it would do out of the body, but excite inflammation, spreading extensively to the neighbouring parts. It will not do merely to throw in a substance, if such there be, which would produce an inert one, in combination with some of the ingredients of the first; but we must counteract also the

effects of inflammation, and its consequences.

ANTI-EMETICS.

Anti-emetics are medicines which have the effect of suspending vomiting, or removing sickness of the stomach. The irritability of the stomach, by which nausea and vomiting are produced, in very many cases, can only be removed by such remedies as are adapted to restore the organ to health. Hence bleeding, leeches to the stomach, perfect rest, and small portions of iced water, or even ice itself, are often, especially in fevers and inflammatory diseases, the only anti-emetics which can be employed or depended upon. When, however, inflammation of the stomach is not present, vomiting will often be suspended by small doses of magnesia—by the effervescing mixture; table spoonful doses of lime-water and milk; a weak infusion of serpentaria, taken cold; cold toast-water, or by a mustard poultice, or blister, or a spice plaster to the pit of the stomach. When vomiting depends upon the presence of some irritating substance in the stomach, as bile, indigested food, or the like, drinking plentifully of warm water, or of a weak infusion of chamomile flowers, will aid in removing the cause, and in that manner suspend the vomiting. When vomiting continues for any length of time, it will often be suspended by the administration at short intervals of minute doses of calomel, or grain doses of sugar of lead: the use of both these remedies requires, however, great judgment and caution to prevent them from producing injurious effects.

ANTIPHLOGISTICS.

All remedies and modes of treatment which have the power of reducing the increased action of the heart, and morbid heat of the skin in fevers, and of curing local inflammations, are termed antiphlogistics. The epithet is chiefly applied, however, to what is called the *antiphlogistic regimen*, under which are included all the rules, prohibitions,

and observances which are prescribed in cases of fever, inflammation, and diseases of excitement. These directions, viewed by themselves, may appear minute, trifling, and beneath the dignity of science; but, taken together, they form a plan of acting, of which the best recommendation is the safety attending its observance, and the fatal results which ensue when it is rashly, obstinately, or secretly disregarded. The enlightened and upright practitioner does not perplex his patient with the volubility of medical phrases which the latter cannot understand, nor does he needlessly pour in quantities of nauseous drugs; he knows that in many things the patient must minister to himself, and in many, the cautious attention of his attendants must ward off the mischief arising from surrounding circumstances of hourly or incessant occurrence. The antiphlogistic regimen consists in the removal or non-application of whatever would greatly or unnecessarily employ the powers of either the body or mind. To illustrate what is meant, let us take the case of a patient labouring under fever, or pleurisy. The medical attendant will, of course, when first called, use the proper remedies, as blood-letting, purging, and determining to the skin; but he will do comparatively little for his patient's recovery, if his directions for his after-management are not precise, and accurately attended to. The air of the apartment must be kept pure and temperate; there ought to be no unnecessary attendants in the room, fresh air should be admitted from time to time, by a cautious opening of the doors and windows; and all evacuations from the body should be quickly removed from the apartment; there should be no glare of light from the sun, or fire, or candles; the room should be darkened, and the curtains, at least those next the windows, should generally be closed. No talking or whispering should be kept up in the room; the noise of carts or carriages in the street should be diminished by straw or oak bark, strown upon the pavement, or where this is imprac-

ticable, the ears of the patient should be slightly stopped with cotton or wool. The regulation of the diet and of the drink is of primary importance, and it is here that physicians have the greatest difficulties to encounter. The friends of the patient tell with real concern, that he has taken no food for many days, that he must be very weak, and that he surely can never get through if he be kept so low; they do not consider the salutary instinct of nature in loathing the food which the stomach cannot digest; and they venture to give what they think a very little nourishment, in the shape of beef-tea or chicken-broth, or a little wine and water. The physician, at his next visit, finds the fever still high, the pulse full and strong, the thirst urgent, the face flushed; he suspects or obtains a confession of the imprudence which has been committed, and is obliged again to bleed largely to counteract or repair the mischief. When nourishment is allowed at all, it should be of the mildest kind, and such as does not heat or stimulate the body, as thin gruel, or panado, sago, rice, or arrow-root. Equally alarming and destructive effects follow from too strong drinks. However general, among the ignorant, may be the hateful practice of using spirits on all occasions, and their faith in the mysterious virtues of wine, it is to be hoped that few among the well-informed and educated classes would venture on strong drink in any illness, without the express order of the physician; but even among the best informed classes injury is sometimes done, especially in the inflammatory diseases of child-bed, by the ignorance or officiousness of nurses and servants. The drink, in inflammatory diseases and fevers generally, should be of the mildest sort, neither too hot nor too cold, though it is in many cases very proper to allow the patient cold water, for which he often has instinctively a strong and not unsafe desire. The most proper drinks in all inflammatory diseases are toast-water, barley-water, water-gruel, various preserves of fruit dissolved in water, as strawberry jam,

raspberry jam, &c., whey of milk, vinegar and water, sulphuric acid largely diluted with water, water from cream of tartar, lemonade, and the like. Much irritation will be prevented by frequent changes of linen and bed-clothes. Much of the antiphlogistic regimen is to be directed to the mind. Every source of uneasiness and anxiety must be avoided; there must be no talking about business, no hasty or unguarded narratives introduced, no exhibition of distress and hurry, of alarm, or mystery, in the faces of friends or attendants. Every thing should be done for the patient's comfort, with calmness and good sense; and while we cannot sanction any deceiving of his mind with regard to his situation, when there is real danger, we consider it as of great importance to give him no unnecessary agitation, by the imprudence of those around him, or by representing things as worse than they really are.

ANTISCORBUTICS.

Antiscorbutics are medicines which prevent or cure the scurvy. The chief of these are fresh vegetables, and nourishing food generally, acescent fruits, vinegar, lime and lemon juice, sorrel, pure dry air, proper clothing, daily active exercise, and such pursuits as have a tendency to promote a cheerful disposition of the mind.

ANTISPASMODICS.

Medicines given to relieve spasm, or irregular and painful action of muscles, or muscular fibres, are generally termed antispasmodics. Antispasmodics, properly so called, are given rather to put an end to a fit, or sudden attack of painful convulsions, than to cure the disease itself. A patient is seized with a fit, and to put a stop to it, we administer to him hartshorn, or camphor; but this will not cure the disease, nor prevent its return; we must try to discover its cause, whether it proceeds from worms, from dentition, from a wound, or from disease seated in the brain, spinal marrow, or some other organ; and we must direct our after-

practice accordingly. Antispasmodics are useful in cramp of the stomach, in griping pains of the bowels, in asthma, hysterics, and some other sudden and violent affections, not connected with inflammation. In griping of the bowels, it is a very common practice among the ignorant, to trust to the antispasmodic powers of ardent spirits, either alone or made into toddy; but the possibility of the pain being a symptom of inflammation, should, in every instance, deter from this expedient. If the pain arise merely from spasm or flatulence, a cupful of warm water will be a far better remedy. Frequently, cold water suddenly applied to some part of the body, relieves the spasm there, or even in distant parts. Thus the cramp in the leg is stopped by cold applied to the foot. Sometimes the warm bath relieves spasm, sometimes blood-letting does it. It appears, then, that whatever makes a strong or sudden impression on the nervous system, is to be regarded as an antispasmodic; but the medicines which commonly go under that name, and produce a sudden relaxation of the spasm, are musk, castor, ammonia, assafoetida, valerian, opium, ether, and camphor.

AROMATICS.

All medicines which have a grateful, fragrant smell, and an agreeable pungent taste, are, properly speaking, aromatics. Their peculiar flavour appears to reside in their essential oil, and arises in distillation, either with water or alcohol. Medicines of this kind, when administered for the purpose of dispelling wind from the alimentary canal, are termed carminatives. All of them produce upon the tongue and palate a peculiar sensation of warmth and pungency; and occasion, when swallowed, a corresponding impression upon the stomach, which rapidly communicates itself to every part of the body; causing increased action of the heart, and a glow of heat upon the surface. Their action, therefore, is that of a diffusible stimulant, which renders their employment improper in cases of fever, as well as in inflammation of the stomach

and other organs, and in plethoric and robust constitutions generally.

Aromatics are now most commonly used by physicians to cover the disagreeable taste of other medicines, and to cause them to be more easily retained by the stomach.

ASTRINGENTS.

Astringents are those remedies which, when applied to the body, render the solids dense and firmer, by contracting the fibres, independently of affecting their nervous or muscular power. They thus serve to diminish excessive discharges; and by causing greater compression of the nervous fibrillæ, may probably lessen morbid sensibility, or irritability. Hence, they may tend indirectly to restore the strength when it is impaired by these causes. Most astringents impart a peculiar harshness and roughness to the tongue and palate when tasted. The chief astringents are alum, sugar of lead, catechu, oak bark, galls, kino, lime-water, logwood, tva ursi, and the mineral acids diluted. Cold, also, appears to act, to a certain extent, as an astringent. Astringents are principally employed to arrest profuse discharges of blood and mucus, and to check the inordinate action of the bowels. In certain cases of local inflammation, externally seated, astringent washes are also beneficial. Their internal use requires a very great degree of judgment; improperly resorted to, in such cases as are attended with inflammation, they very often are the cause of no little mischief.

BATHING.

Bathing, in all its various forms, whether in cold, sea, warm, or hot water; in vapour, or in medicated fluids, or steam, is a remedy applicable to a large number of diseases, and productive of the most beneficial effects, when properly timed and judiciously managed.

Cold bathing, or in water of 70 degrees or under. Immersion in water of this temperature, is seldom employed as a remedial agent. Cold water is ge-

nerally applied to the surface of the body by affusion, aspersion, or sponging, or by enveloping a part of the body in cloths wet with it. The effects of cold water thus applied, are those of a sedative; in other words, it reduces the action of the heart, and of the minute blood-vessels of the skin, internal membranes, and viscera. Hence, it is in diseases attended with increased action of the general circulation, or of the small blood-vessels of a part, especially when there is also considerable augmentation of the heat of the surface, that cold bathing is an appropriate remedy. In all fevers attended with a dry and hot skin, the application of cold water to the surface is productive of the very best effects; it is, likewise, a very powerful remedy in inflammation, whether seated internally or externally, and in all diseases attended with discharges of blood. The period for its use, in fevers, is that when the heat is the greatest, when the skin is perfectly dry, and no tendency to perspiration or chilliness is present. In the height of the disease, before the patient has become exhausted, the water may be dashed, or sprinkled over the surface of the body; but at a later period, and in the more debilitated subjects, sponging the skin is preferable, or probably still greater advantage will be derived by substituting the tepid bath. In fevers, attended with much affection of the head, cold cloths, or even ice, applied to the scalp, will be found to be beneficial. In all eruptive fevers, when the skin is morbidly hot and dry, the application to it of cold water, is one of our most efficient remedies. In inflammations of all the internal organs, excepting those of the chest, and in all acute discharges of blood from the nose, lungs, stomach, bowels, or uterus, the application of cold, as near as possible, to the diseased organ, should be resorted to. The only condition required for its application is a dry skin, the heat of which is steadily above the natural temperature, the patient, at the same time, not being in a state of very con-

siderable exhaustion. In external inflammations, as well as in sprains and bruises, the application of cold water immediately to the part affected, and steadily kept up, greatly facilitates the cure. In extensive burns, by which the skin is not destroyed; in painful ulcers, presenting a red and inflamed appearance, and in wounds, attended with much inflammation, the local application of cold water is likewise an important remedy. In apoplexy, and in convulsions, especially in children, cold water or ice, applied to the head, is most generally attended with beneficial effects. In cases of poisoning from opium and the other narcotics, and in asphyxia, from inhaling carbonic acid gas, freely sprinkling the surface of the body with cold water, or dashing it over the head and chest should be resorted to, as the best means we possess of restoring the suspended functions of life.

Sea bathing. This is to be considered as a species of cold bathing, the water of the sea along our Atlantic coast being seldom of a temperature beyond 80 degrees in the summer season. Its effects on the system are, therefore, nearly similar to those of simple cold water. In consequence, however, of the salt being deposited upon the skin as the water evaporates after immersion, a degree of irritation is produced over the surface of the body, which renders sea bathing improper whenever the skin is the seat of disease. Scrofulous affections are those in which immersion in the sea is the most strongly recommended. In many of the chronic affections of the stomach, as well as in those diseases generally termed nervous, when they are attended with daily paroxysms of fever, or heat and dryness of the skin, and accelerated pulse, sea bathing will be found beneficial. Indeed, in most of the chronic diseases, accompanied with febrile symptoms, it is a remedy from which advantage will often be derived. It is improper, however, in all instances where the skin is cold and clammy, and the powers of the system

are much exhausted. It is, also, a hazardous remedy in inflammations of internal organs, in the early stages of consumption, and in spitting of blood.

Warm bath. Water of the temperature of between 90° and 98° applied to the body, constitutes the warm bath, which is uniformly to be considered as diminishing the heat of the body, although the first sensation experienced on going into the bath is that of warmth. The warm bath diminishes the frequency of the pulse, especially when it has been greater than natural; and this effect is in proportion to the time of being in the bath. It renders the breathing slower, produces a soothing influence upon the nervous system, determines the fluids to the surface, removes impurities from the surface, promotes the scaling off of the scarf skin, and softens the nails, corns, or other hardnesses of the skin. The warm bath is very usefully employed where there is morbid heat of the surface, and frequency of the pulse. Its relaxing powers are very serviceable in cases of rupture, suppression of urine, and spasmodic affections of the bowels. There are many other diseases in which the warm bath is beneficial. In the numberless diseases of the skin, it not only does good itself, but prepares the skin for the application of other remedies. It is good in rheumatic and catarrhal affections, when not attended with much fever, in diarrhœa, in palsy, and in diseases of the urinary organs. In small-pox, measles, and chicken-pox, where there is much fever, and long delay of the eruption coming out, the warm bath both relieves the fever, and brings out the eruption in a kindly manner. When by cold, or by improper treatment, the eruption has disappeared, and bad effects are produced on the lungs and other internal parts, the warm bath is our most powerful assistant in bringing out the eruption again, and relieving the dangerous symptoms. In the feverish diseases of children, arising from teething or disorder of the bowels, the warm bath is an excellent remedy. By patients labour-

ing under stomach complaints, and who are too much debilitated to use the cold bath, much benefit may be derived from a prudent use of the warm bath. The temperature at first should not be above 94° or 95° , and it should always be regulated by the thermometer. The best period for such patients to use it, is an hour or two before dinner. They may remain in the water for about twenty minutes, and may take a little exercise afterwards, but not so much as to fatigue. It is commonly supposed that a person on coming out of the warm bath is more than usually susceptible of cold, but experience has satisfied the most accurate observers that such fears are groundless; and that it is unnecessary either to make any alteration in the clothing, or to avoid the common exposure to the air.

Hot bath. The hot bath is formed of water heated above 96° . In its effects upon the system, it is decidedly stimulating; increasing the redness and heat of the skin, accelerating the circulation, and, when prolonged, producing a most copious perspiration. It is an improper remedy in all acute diseases; but will be found useful, occasionally, in cases of disease accompanied by a languid circulation, and a cold, clammy, torpid skin, provided there is no tendency to disease of the brain, or to discharges of blood from internal organs. Its use requires great judgment; it should, therefore, never be resorted to, excepting when prescribed by an experienced physician.

Vapour bath. In this, the patient is exposed to the vapour of water, either atone, or medicated with various impregnations. It is much used on the continent of Europe, and of late years has been more frequently employed in this country than formerly. The first remarkable effect of the vapour bath, is to excite profuse sweating. It is recommended in the cure of rheumatism and of gout. It has been found of speedy and striking benefit in obstinate diseases of the skin, and it is also recommended in ulcers, in chilblains, and in dropsy; its power in relaxing stiff

joints is wonderfully great. In Russia, it is used as an article of luxury, the vapour being heated so high as 150° ; and, what we should think would be destructive to the constitution, after being exposed to vapour at this high temperature, individuals often proceed to roll themselves in the snow, or plunge into cold water, which they do with perfect impunity.

Medicated baths. These may be either liquid or vapour, and are made by adding some medicinal substance to the common baths. The fluid ones are chiefly imitations of the natural mineral waters, and they are principally used in diseases of the skin and joints, and in chronic rheumatism. The ingredient which is thought most beneficial, whether sulphur, iron, or other substance, may be added in larger or smaller quantity, according to the desire of the prescriber and the effect wanted. In some venereal complaints, when it is wished to introduce mercury very speedily into the system, a quantity of cinnabar is thrown upon burning coals, and the patient is thus exposed to a vapour bath formed by its fumes; and for the same, and also for cutaneous affections, the nitro-muriatic acid bath has been used, in the proportion of three or four ounces of acid to twenty gallons of water. These baths should always be prescribed and superintended by a medical man.

Douches. By douches are meant a stream of cold or warm water poured or dashed upon some part of the body. They combine, therefore, with the action of the fluid, a percussion more or less considerable. They are directed to different parts of the body, in chronic engorgements of the viscera, stiffness and contraction of the joints, and external inflammations of a chronic character; for this purpose, the natural or artificial waters impregnated with sulphur, or iron, are usually preferred. Douches of cold water are occasionally introduced, by a tube proceeding from an elevated reservoir, into the rectum and vagina. Very good effects have resulted from them in cases of obsti-

nate costiveness, whites, and in chronic affections of the uterus. Douches are sometimes applied to the head, in certain diseases of the brain, during the time the patient is immersed in a warm bath.

BITTERS.

There are many vegetable substances possessed of a bitter taste, which are useful both in diet and in medicine. They produce a tonic effect on the digestive organs, and through them on other parts of the system. Bitters seem to be necessary to promote digestion in animals which live on herbs, as cattle do not thrive upon grasses which do not contain a portion of bitter principle. In man, slight bitters produce also, when cautiously used, invigorating effects on the stomach, and increase the digestibility of vegetables.

The purest bitters, and those which are most used as medicines, are chamomile flowers, gentian, quassia, and Colombo. *Chamomile flowers* are used in the form of infusion, made by pouring a quart of boiling water on a handful of the dried flowers. Of this infusion, a tea-cupful may be drank twice a day. There are different ways of using *Gentian*. The infusion of the root in hot water is one of the most agreeable bitters we can employ; and the flavour will be improved by infusing along with the gentian some orange peel or the rind of lemons; from one to two ounces may be taken twice a day. The extract of gentian is used in the dose of from ten grains to thirty, made into pills. There is a wine of gentian made by macerating for twenty-four hours, in proof spirit, four ounces of the following ingredients: half an ounce of gentian root, an ounce of Peruvian bark, two drachms of dried orange peel, and an ounce of canella bark. After the maceration, two pints and a half of white wine are to be added; of this, one or two dessert-spoonfuls may be taken twice a day. The tincture of gentian is also very much employed. But a serious objec-

tion to bitters in the form of wine or tincture, is the small number of cases in which they can with safety be employed, and the resemblance which their use bears to dram-drinking, and the danger of inducing by it that habit. *Quassia* is an excellent bitter, used in the form of infusion, made by a drachm of the bark and wood of the plant to a pint of water: a cupful may be drank several times a day. *Colombo* may be used in powder or in tincture; ten grains of the former, and a tea-spoonful in a glass of water, of the latter. Bitters are improper, however, and will not restore strength to the stomach, unless that organ is perfectly free from inflammation and irritation, and the other portions of the digestive apparatus perform freely their respective functions. It is important, also, to remark, that the long continued use of bitters is productive of very serious injury to the stomach.

BLOOD-LETTING.

Blood-letting signifies the taking away of blood by artificial means, and is either general or local. General blood-letting is performed by the opening of veins or arteries by the lancet; and local blood-letting by the application of leeches or cupping-glasses. The great power of blood-letting in the cure of diseases can not be quite satisfactorily explained. Even in pretty large bleedings, the quantity taken away does not bear a great proportion to the whole of the circulating mass; and blood-letting seems to do good principally by somehow altering that excited state of the system which occurs in robust constitutions, and which is marked by a full, strong pulse, and a florid look, with firmness and activity of the muscular system. This excited state, pushed a little farther, passes into inflammation, general or local. When the fulness of the vessels is taken off by blood-letting, their coats contract less strongly, and the excited action is lowered. Blood-letting seems to have great effect by its action on the nervous system, as we see in the fainting which

is brought on in many cases by a very small bleeding.

The taking away of blood, in whatever way it acts, is ascertained by long and universal experience to be one of our most powerful remedies. The particular cases to which blood-letting is applicable, may be considered as ranking under the heads of diseases of excitement, of fulness, and those which arise from tension or irritation. Blood-letting is useful in the following diseases. 1. *Fever*. As there are fevers of various kinds, and as the same disease in its different stages presents very various symptoms; the remedies which would be useful at one period, and in one kind of fever, would be destructive when the circumstances are altered. To no remedy is this remark more applicable than to blood-letting. At one time, it may be the means of a perfect cure; at others, it may occasion a waste of the vital powers which can not be repaired. It therefore requires much discrimination to determine the kinds of fever, and the periods of the disease in which it is proper, and to prevent bad consequences following the loss of blood. In *inflammatory fever*, where there is a strong, quick, and full pulse, much flushing of the face, throbbing at the temples, delirium, thirst, and heat of the skin, we should not hesitate to bleed largely. There is a disease now well known to the people by the name of *typhus fever*, where the pulse is small, weak, and fluttering, the tongue black, the skin dry, the patient delirious and insensible; in this fever, or to speak more correctly, at this *stage of the fever*, it would be insanity to bleed largely. But whatever may be the danger of bleeding at that stage of the disease, or however the physicians of forty years ago would have shuddered at the thought of bleeding a patient in *typhus*, it is well known that this disease often begins with symptoms of high excitement; and there is reason to believe that the blood is irregularly distributed and accumulated in certain organs. At this early period, blood-letting is one of the most effec-

tual remedies we can employ; and when prudently and moderately employed, it prevents the sinking of strength which frequently succeeds to high excitement when too long continued. Much caution is requisite not to bleed too often, nor when the disease has continued for several days; as this would have a tendency to bring on a dangerous and fatal sinking of the strength, or the true typhoid state. Against *inflammation* of every organ, blood-letting is the chief, and almost infallible remedy. Other auxiliaries have been found, but our main reliance is upon blood-letting. In *acute rheumatism*, or what is popularly called a rheumatic fever, it is generally proper to begin our treatment by a pretty free discharge of blood; and it is vain to expect success from the sweating practice, unless the high action of the vascular system be first reduced by this or other means. There are certain states of the system in which, after a period of what is called high health, feverish symptoms come on; and then a discharge of blood, generally clear and florid, spontaneously takes place from some part of the body. Thus we have bleeding at the nose, spitting of blood, or a discharge of blood by stool, or urine. Such discharges of blood are called *active hæmorrhages*; and, however paradoxical it may appear to cure a discharge of blood by taking away more, yet by this operation the physician has it in his power to relieve the system, and to diminish the danger which might occur in organs liable to be injured by the too great activity of the circulation, or likely to become the seat of diseases which may ultimately prove fatal. Instances of active hæmorrhage are seen in bleeding from the nose, and from the lungs. There are bleedings again where the system is in a state quite the reverse of activity and excitement, and where artificial blood-letting would be improper. These hæmorrhages are termed *passive*. Such are the true sea-scurvy, and the too copious flow of the monthly discharge, when accompanied by weakness and

a feeble and impaired state of health. In *apoplexy*, blood-letting is also absolutely necessary. In *convulsive diseases*, especially if there is an appearance of any tendency of blood to the head; and in certain kinds of *dropsy*, occasionally in *asthma*; in short, in any disease, by whatever name it may be called, where there is a necessity for quickly reducing feverish action, or diminishing the quantity of blood circulating in the system, or for reducing local inflammation or congestion.

Quantity of blood to be taken. With respect to the quantity of blood to be taken away, no general rule can be given; different diseases are to be treated with different quantities, and in two persons labouring under what might appear to be the same disease, a quantity that would have little effect in the one case would cure the other. In an adult of good strength, a pound of blood, or sixteen ounces, is a moderate bleeding; twenty-four ounces, a full bleeding; and from thirty-two to forty ounces, a large one. Some inflammations are so violent, and demand such active treatment, that in one day the bleeding may require to be repeated from three to six times, the quantity taken away in a day varying from sixty to eighty or ninety ounces, and at one bleeding from thirty to fifty ounces. In general, we are not to be regulated by measurement, but by the effect produced on the disease, and on the general system.

Mode of bleeding. The veins from which blood is most commonly taken, are those at the bend of the arm; there the veins are in general pretty numerous and readily got at, and a ligature is easily put round the limb above to fill the veins. In diseases of the head,

we may sometimes consider it advisable to take blood from the external jugular vein, or from the temporal artery. In some cases, we find it difficult to get enough of blood from the arms, and we try it from the superficial veins of the foot. In bleeding at the bend of the arm, when the blood appears to run less freely, its flow is increased by the

patient squeezing the hand, or grasping something in it, by which the blood is forced from the deep to the superficial veins. Sometimes we are prevented from getting the proper quantity by the patient fainting; in this case we are to lower the head and shoulders, stop the orifice for a little, and then to let the blood flow when the patient is in the horizontal posture. Sometimes the patient, from mental emotion, faints almost immediately on the arm being tied up; and sometimes we must for the present be content with the diminished action of the system, of which this fainting is the proof. Sometimes the veins are so small, or so imbedded in fat, that it is impossible to get the quantity of blood we wish. This is often the case in children. We are obliged, therefore, to resort to other methods, as opening the temporal artery, or leeches, or cupping.

Accidents that sometimes follow blood-letting. A dark livid swelling sometimes takes place at the wound made in blood-letting. It looks alarming to those who are not familiar with it; but it is not in general a circumstance of much consequence, as it arises merely from the blood getting under the cellular substance and skin. It sometimes occurs to such an extent that the proper quantity of blood can not be obtained. In this case, we must take off the bandage, and apply compresses wet with a cooling lotion, as of vinegar, or cold water, to the swelling, retaining them by a slack bandage. The effused blood will in time disappear; and if we have not got enough of blood, it must be taken from the other arm. Sometimes inflammation of the skin occurs in the neighbourhood of the wound. This is to be treated with cooling applications, and rest; and by a poultice, if there is a tendency to suppuration. Red lines are sometimes seen extending from the wound; these are inflamed absorbents, and are painful on pressure; sometimes the inflammation reaches to the arm-pit, causing the swelling of a gland there, and perhaps suppuration. Inflammation may spread along the

course of the vein, and produce symptoms of the most alarming, and even fatal nature; these cases are to be treated by rest of the limb, leeches upon the inflamed part, low diet and purgatives.

The fascia, or membranous expansion on the fore-arm, may become inflamed, and give rise to great pain, tension, and febrile symptoms. Poul-tices are to be applied, and an extensive incision made through the fascia, to relieve the tension, and to give vent to matter. A nerve may be wounded, and this may give rise to convulsions, violent pain, and other symptoms of nervous irritation. In every puncture of the skin, a nerve of some size or other must be wounded; and it is thought to be in consequence of the partial wound of a nerve of some considerable size that these violent accidents occur after blood-letting. The artery of the arm may be wounded, giving rise either to a dangerous bleeding, or to aneurism, calling for the immediate attention of the surgeon.

After enumerating so many accidents that may arise from blood-letting, we may surely be allowed to blame the rashness of those numerous dabblers in surgery, who pretend to be competent to the performance of this operation, but who are ignorant of the precautions they ought to observe, and aghast when the painful or dangerous consequences follow. It should be remembered, that as bleeding is one of the most salutary remedies, when timely and properly applied, so it is one of the most deadly and destructive when exhibited under improper circumstances; and though, from its frequency, it must be often performed by those whose skill and experience are but small, yet it may be attended with accidents which require the utmost boldness, address, and promptitude, to counteract their fatal tendency.

Blood-letting should not be employed but for the cure of disease, or for the prevention of it when manifestly impending. Many persons who have no particular illness, apply to a surgeon

to have blood drawn from them. In Europe, and among country people, blood-letting is habitually employed at certain seasons, with the view of preserving their health; but it is a practice that should not be followed, as it is apt to induce a dangerous habit; and instead of diminishing the quantity of blood, it ultimately rather increases it. Fulness of the system may be prevented by safer means, such as purging; but even this preventive would be wisely superseded by temperance in eating and drinking, and avoiding the provocatives of modern luxury. When apoplexy appears to be likely to make an attack, as indicated by the throbbing of the temples, ringing in the ears, flushing of the face, and headache, then a precautionary bleeding will be very proper. Also, when feverish symptoms occur in those who are known to be subject to spitting of blood.

CARMINATIVES.

Carminatives are those medicines which dispel flatulency of the stomach and bowels by stimulating the inner coat of these organs. They produce only temporary relief, for if the diseased condition of the alimentary canal be not removed by appropriate remedies, it will very speedily become again distended with flatus. The articles generally employed as carminatives are infusions or tinctures of the aromatic seeds and vegetables. The use of these articles is decidedly injurious in every instance in which the stomach or intestines are in the least degree inflamed, or when their sensibility is morbidly increased. They are very favourite prescriptions with nurses and mothers, to allay the gripings with which young children are so frequently afflicted, and under these circumstances a great deal of mischief is caused by their indiscreet administration. Wholesome food, cleanliness of person, protection from cold and damp, and sufficient exercise, will most generally prevent a flatulent state of the bowels of infants; when, however, it depends upon the disease of those parts, carmi-

natives will seldom do much good, but will often increase the suffering of the little patient.

CATAPLASMS.

Cataplasms are external applications of a pulpy consistence, and somewhat tenacious. They are of various kinds; either stimulant, as when made with equal parts of common mustard and crumb of bread, moistened with vinegar; or when common salt is applied externally with bread or meal: or antiseptic, and applied with a view to correct putrescency, as the yeast poultice, or the carrot poultice. Anodyne cataplasms made with hemlock, henbane, or foxglove, are applied to scrofulous or cancerous sores, to allay irritation and pain. Refrigerent cataplasms are made by moistening crumb of bread with a solution of sugar of lead. Emollient cataplasms are most commonly known by the name of poultices.

Poultices are soft emollient preparations applied warm to a part, with a view to relax and soften it, and to promote suppuration by the continuance of a due degree of heat and moisture. One of the best applications of this kind is the common bread and milk poultice, of a consistency thick enough to prevent its spreading farther than is intended, but not so hard as to fret or irritate the skin. Common Indian mush, with the addition of hog's lard, makes also a very good poultice. Poultices should be applied warm, and changed frequently when it is our desire to bring on suppuration quickly. A variety of substances are in popular use as poultices; many of these, however, act upon the part to which they are applied as stimulants, and hence, under ordinary circumstances, are injurious. All that is required in a poultice is softness, moisture and warmth, and as all are combined in the bread and milk, or mush poultice, this should be preferred to most others.

CATHARTICS.

All medicines which accelerate the

action of the bowels, or increase the discharges by stool, are termed cathartics. These remedies, from a general difference in their modes of operation, have been classed under two divisions, namely, laxatives and purgatives. The former operate so mildly that they merely evacuate the contents of the intestines, without occasioning any general excitement of the body, or even stimulating the exhalant vessels of the canal to increased action; the latter produce a considerable discharge of fluid from these vessels, and extend their effects to the system in general; and when these effects are very violent, the purgative is further distinguished by the name of drastic. Laxatives may then be said simply to open the bowels, and to carry off extraneous matter, which is already present in their cavity; but purgatives, as they occasion more extensive effects, may be made subservient to many important purposes in the cure of diseases.

Many medicines which in their usual doses act as purges, may in diminished doses be made to act as gentle laxatives. An ounce of Epsom or of Glauber's salts dissolved in about four ounces of water, and taken pretty warm, will purge strongly; but half an ounce in the same or even a larger quantity of water will operate as an aperient or laxative. Castor oil, in the dose of from half an ounce to an ounce, is a good laxative, or a dessert-spoonful of sulphur, or a dessert-spoonful of equal parts of sulphur and cream of tartar, with molasses; or an infusion of senna, with or without a small spoonful of tamarinds or a tea-spoonful of cream of tartar; or diminished doses of any of the purging salts, may be taken as simple laxatives. The cases in which it is desirable or necessary to use laxatives and not purges, are in persons of a sedentary life, women in the state of pregnancy, and those who are subject to piles, or where we do not wish to reduce the strength of the patient, or produce increased irritation of the intestines.

Purgative medicines as distinguish

ed from *laxatives* in their effects, may be said to produce a considerable influx of fluids from the exhalant vessels which open into the intestinal canal, and hence to extend their action to the system in general. The effects of purgatives depend either on their stimulating the muscular fibres of the intestines to a quicker motion, by which the contents of the bowels are more speedily and completely discharged; or on their stimulating the exhalant vessels and the mouths of the mucous glands, which open into the bowels, by which there is an increased discharge both of serous and mucous fluids; or purgatives may so stimulate the neighbouring viscera, as to occasion a more copious discharge of the bile and pancreatic liquor. Different purgatives have different powers of producing these several effects. Sulphur, magnesia, and manna, evacuate the bowels without any great increase of serous discharge; while others, as the neutral salts, and some vegetable purgatives, as gamboge and elaterium, produce large watery evacuations, and are thence denominated *hydragogues*. The mercurial purgatives, as calomel, seem to act chiefly by promoting an increased flow of the bile, and hence are called *cholagogues*.

The use of purgative medicines is of great importance in the cure of a large class of diseases. They can be so managed and selected, as either simply to promote the discharge of feculent matter, or to cool the system by abstracting watery fluid, and withdrawing the action from the upper parts of the body; or to promote the flow of dropsical water by stimulating the absorbents and exhalants, which open in such prodigious numbers on the inner surface of the intestines.

The neutral salts furnish many of our most useful purgative medicines; as the sulphate of soda, the sulphate of magnesia, the phosphate of soda, the tartrate of soda; these are commonly given to purge the bowels, and to reduce the excitement of the arterial system, and are useful in nearly all

fevers and inflammatory disorders. The usual dose of them is an ounce, dissolved in about four ounces of tepid water: they should be taken in the morning, and not too warm, as in that case they will either be thrown up, or pass off too quickly by the bowels. The purgatives from the vegetable kingdom are very numerous, as aloes, jalap, rhubarb, gamboge, scammony, colocynth, and others; and in addition to these, we have calomel, and perhaps a few more, from the mineral kingdom. Castor oil is a mild and safe purgative, more commonly ranked as a laxative; and there is another vegetable oil, the croton, famous for its activity in doses so small as a single drop or two.

Purgatives are combined together with great and manifest utility; not merely by adding the powers of one to another, but by making the desired effect more complete, certain, and advantageous. Thus five grains of calomel will purge, and twenty grains of jalap will purge separately; but by giving in one dose five grains of calomel and twenty grains of jalap, we do not produce a double evacuation, but the one article modifies the other, and produces the effect intended with more certainty and expedition. It is unnecessary, in this general article, to speak of the different kinds of purgatives, as we shall detail under each of them, their properties, and the reasons of preferring any of them in particular cases. We may say here, that it is not a good habit to take frequent purgatives; they relax the intestines and debilitate the digestive system, as well as the whole body; but in some constitutions, the bowels are so torpid, that it is absolutely necessary for the preservation of health, to take some medicine or other occasionally; directed, not so as to produce copious thin stools, but gently to stimulate the intestines, and excite them to evacuate the proper feces. But it should always be recollected, that to overcome habitual costiveness, a properly regulated diet and regimen are far more effectual than the frequent use of purgative medicines.

CLYSTERS.

Clysters, or, as they are commonly styled, injections, are substances thrown into the rectum by mechanical means. The principal clysters are those of the purgative, the emollient, and the anodyne kind; and in some cases, we attempt to convey nourishment into the system by means of a clyster. The instruments used are either a large syringe, or a bladder and pipe; and the kind and quantity of the matter thrown in, are to be regulated by the age of the patient, and the purposes to be answered. A *purgative* clyster may be made of the infusion of senna, adding to a pound of such infusion, an ounce and a half of Epsom salts; or of a pint of gruel with a spoonful of common salt; to which a little butter, or sweet oil, or castor oil, may be added. The most common and easily prepared purgative injection is composed of a pint of warm water, a large tea-spoonful of common salt, and a table-spoonful of sweet oil and of molasses. When a very prompt operation is required, this will very generally be obtained by an injection of a gill of soft soap, diffused in half a pint of warm water. Though purgative injections are of excellent service in many cases, and produce the evacuation of the rectum, and sometimes of a larger extent of the bowels, yet in few cases of disease should we rest satisfied with them, but should generally endeavour to give purgatives by the mouth. *Emollient* clysters are made of gruel, barley water, flaxseed-tea or thin starch, and are used in cases of colic, and in certain stages of inflammation of the bowels, to act as internal fomentations or poultices. A large quantity should be given, and in general as warm as can be easily borne. Emollient clysters are sometimes very useful in quickening the progress of lingering labours. *Anodyne* clysters are of essential benefit in many severe and painful affections. They should be given in small quantity: a tea-cupful of thin starch or gruel, with a tea-spoonful or even more

of laudanum, is to be injected, and as little irritation as possible should be caused in the administration of it; and if the patient is of discretion enough, he should make every exertion to retain it. Such a clyster is of excellent benefit in looseness, after any offending matter has been cleared away; it is necessary in straining, and allays that most troublesome symptom, the constant inclination to stool, in dysentery. An excellent anodyne injection is made by combining intimately in a mortar a grain or two of opium with a gill of olive oil. In some unhappy cases, when nourishment can not be taken in by the mouth, an attempt is made to convey it into the system by *nutritive* clysters; and the composition of such is strong beef-tea, yolks of eggs, and a quantity of laudanum to assist the power of retention. Such injections may prolong life for a little, but can never be expected to do much. Sometimes *carminative* or *antispasmodic* injections are given; these are made of the tincture or infusion of assafoetida; and give relief in cases of spasm or flatulence of the larger intestines. A very powerful, but very dangerous injection is sometimes necessary in cases of rupture. It is made by boiling a drachm of the cut leaves of tobacco for ten minutes in a pint of water; but on account of its highly debilitating effects, and the violent vomiting which it excites, the tobacco injection should never be administered, except in the presence of a practitioner of judgment and experience.

COLLYRIA.

Washes applied to the eyes, when these are diseased, are termed collyria. In inflammations of the eyes, the best application is cold water, or an infusion of the pith of sassafras in boiling water, after it has become cold. When the inflammation has been somewhat abated, rose-water, lead-water, or similar astringent washes may be advantageously resorted to, and in certain chronic affections of the eye, applications of a stimulating kind are required.

CUPPING.

Cupping is an operation in which glasses exhausted of air are applied to any part of the body; and the pressure of the surrounding external air forces the blood and fluids to that part. The air may be exhausted, either by heat excited by burning within the glass, paper or cotton steeped in spirits of wine, or by a syringe acting as an air-pump. When the part upon which the cupping-glasses are applied has been previously scarified, blood may be very conveniently drawn from that place; and as we may have cupping-glasses of any shape, we have it in our power thus to abstract blood from surfaces, whether they be flat or prominent. Cupping is useful in nearly all the internal inflammations, as well as in disorders of the eyes; in the latter case, blood may be taken from the temples, from behind the ears, or at the back of the neck. Cupping is also useful in apoplexy, epilepsy, and other convulsive disorders; and in all cases where there appears too great a determination of the fluids to any particular part. Dry cupping signifies the application of the exhausted glasses to a part, without abstracting blood. Its tendency is to invite the fluids from the internal parts to the place where the glass is applied. The operation should be repeated till the part is red and somewhat painful; its effect, in some measure, resembles that of blisters. It is generally resorted to, in those cases in which the abstraction of blood is considered unsafe.

Cupping is seldom dexterously performed, except in the hands of professed artists. The difficulty consists in exhausting the glass only so far as to let the vessels under it be filled, but not to suffer its edges to press so firmly round as to impede completely the circulation.

DEMULCENTS.

Demulcents are medicines suited to prevent the action of acrid and stimulating matters upon the mucous mem-

brane of the throat, lungs, stomach or bowels, or upon the skin, when either is the seat of disease; and that, not by correcting or changing the properties of the substances coming in contact with these parts, but by enveloping them in a mild and viscid matter, which prevents their action upon the morbidly irritable surfaces; or, as is most generally the case, by covering and shielding the latter. Demulcents are principally employed in catarrh, dysentery, stone, gravel, inflammations of the kidneys and bladder, and in certain diseases of the skin. As they possess no active powers, they may be taken in such quantities as the stomach will bear. Mucilages, as gum-water, flaxseed-tea, infusion of quince-seeds, water-gruel, and the mild expressed oils of vegetables, are the principal demulcents employed. They are sometimes thrown by injection, into the rectum, the best for this purpose is thin starch, flaxseed-tea, or olive oil.

DIAPHORETICS.

Diaphoretics consist of medicines which, from being taken internally, increase the perspirable discharge by the skin. When this is increased so far as to be condensed on the surface, it forms sweat; and the medicines producing it are termed sudorifics. The operation in both cases is the same, differing only in degree, from increase of dose, from the employment of more active articles, or from the use of auxiliary means. This class of remedies may be divided into, 1. *Antiphlogistic diaphoretics*, or those which reduce the action of the heart and arteries; these are principally the antimonials, small doses of ipecacuanha, nitre, and the saline mixtures; together with the warm bath, and in certain cases bleeding. 2. *Stimulating diaphoretics*, as the volatile salts, essential oils, serpentaria, contrayerva, guaiacum, opium, and camphor; these are proper only in cases where the circulation is languid, the skin below the natural temperature, and the general sensibility of the system is reduced

3. *Dilutent diaphoretics*, as a weak infusion of balm, chamomile, or common tea, lemonade, toast-water, whey, and the like. These are best adapted to cases of fever, after depletion, towards the decline of the hot stage; they are likewise useful in increasing the action of the other diaphoretics.

4. *External diaphoretics*, as the warm or vapour bath; or the application of cold water to the skin when the latter is very hot and dry. Frictions may likewise, in many cases, be ranked under this head.

The proper employment of diaphoretics, as well in regard to the diseases in which they are demanded, the period of the case when they are resorted to, and the particular kind of diaphoretic to be preferred, demand a great deal of judgment. By many persons they are considered to be remedies adapted to all cases of disease, whenever the skin is dry and hot; this mistake causing them to be resorted to under improper circumstances, has caused not a little mischief. In those affections, attended with a dry and burning skin, and violent action of the heart and arteries, the only diaphoretics to be depended upon, are the lancet, cold drinks internally, the application of cold to the surface of the body, and after the violence of the disease has in this manner been broken, small doses of the antimonials, combined with nitre, or some other neutral salt. In diarrhœa and dysentery, as well as in rheumatism and catarrh, accompanied with a dry, harsh skin, the temperature of which is not much above that of health, the warm bath, and combinations of opium and ipecacuanha, should be preferred.

When diaphoretics are resorted to, the patient should be confined to bed; the temperature of the room should be kept at a medium point; and sudden transitions from a warm to a cold air carefully avoided after the sweating has subsided.

DIET.

In the cure of disease, a proper regulation of the diet is not less important

than the administration of appropriate remedies. In many cases, a cure is impossible, unless a due attention be paid to the food and drinks taken by the patient. In fevers, and all inflammatory complaints, the diet should be confined to the mildest diluents, taken in moderate quantities. In chronic diseases of the stomach, the food should consist of a moderate allowance of such articles as are nutritive, readily digested, and without any stimulating properties. In bowel complaints, simple demulcents, or decoctions of the farinaceous seeds, with or without milk, according to circumstances, are all that it is proper to allow. In the treatment of dyspepsia, gout, various nervous affections, the early stages of consumption, scrofula and scurvy, a proper diet is all-important, and, in conjunction with exercise, pure dry air, and appropriate clothing, constitutes the chief means for their removal.

DILUENTS.

Simple watery fluids, by themselves, or rendered slightly acid, by the addition of lime or lemon juice, or combined with some bland mucilage, are called diluents; they increase the fluidity of the blood, render several of the secreted and excreted fluids of the body less viscid, and promote the action of certain of the glandular organs. There are certainly few remedies, whose operation is more simple, obvious and important; and yet there are scarcely any whose value has been more underrated, or whose application has been so frequently neglected through the suggestions of false theory. Water is the universal beverage of animals, and the necessity of its supply, in many diseases, is indicated by an intolerable sensation of thirst. Diluents are given in fevers and inflammations, to lessen the stimulant quality of the blood, as well as to moisten the mucous membrane of the fauces and alimentary canal, which is, in general, morbidly dry and hot. They are used, also, to promote the action of various remedies, as purgatives, diuretics, and diaphoretics.

DIURETICS.

Diuretics are medicines which increase the secretion by the kidneys, and by consequence the flow of urine. This is an effect which, in many cases of disease, we are very anxious to accomplish, and which has a very salutary tendency. In dropsy, it is always very desirable to increase the flow of urine, and in several species of that complaint, it is the chief indication of cure. The principal diuretic medicines are the following: cream of tartar, squill, foxglove, acetate of potash, nitrate of potash, carbonate of soda, spirit of nitrous ether, turpentine, juniper, tobacco, and mercury.

These various diuretics have their peculiar modes of operating. Some, as potash and its combinations, nitre and cream of tartar, squill, juniper, and turpentine, seem to act by directly stimulating the kidneys, being carried, more or less decomposed, to these organs. Others, as mercury, stimulate the absorbents primarily, and secondarily the kidneys; others appear to act first on the stomach and digestive organs, or the bowels, and afterwards on the absorbents; such are tobacco, jalap, gamboge, elaterium; while others, by reducing the action of the heart, and emptying the blood-vessels, increase the action, first of the absorbents, and secondarily that of the kidneys.

Their effect is aided by a moderate degree of cold applied to the surface of the body, and we, therefore, prefer giving them during the day-time. It is to be remarked, however, that we are by no means certain of always procuring a diuretic effect by any medicine whatever, and that even those which, in general, have the highest character, frequently fail.

ELECTRICITY.

The efficacy of electricity in the cure of several diseases, is supported by many very respectable authorities. It acts upon the body as a stimulant, augmenting considerably the circulation of the blood, and exciting the ac-

tion of many of the glands and of the absorbents. It has been found most beneficial in palsy, gout, chronic rheumatism, deafness, tooth-ache, violent swellings, suppression of the menses, nervous head-aches, contraction of the muscles, stiffness of the joints, &c. It has generally been found injurious, in all acute diseases, inflammatory affections, and where there is great irritability, or robustness of constitution. It should be applied by directing a stream of the electric fluid to the part in which the disease is seated. Shocks, in general, should be avoided, or at least they should be very slight.

Galvanism, which is a species of electricity, has likewise been employed in various chronic affections; and different kinds of apparatus have been invented for its application to various parts of the body.

EMBROCATIONS.

Embrocations are medicines which are applied to an external part of the body by friction, either to produce a stimulating effect upon the skin, in which case they are termed *rubefacients*; or, with the view of the article employed, being taken up by the absorbents, and carried into the system, or acting upon the part to which they are immediately applied; thus, mercurial ointment is frequently used as an embrocation to produce salivation; iodine to dispel scrofulous and other indolent tumours, and anodyne embrocations are often resorted to, to relieve painful affections of the muscles.

EMETICS.

Emetics are substances capable of exciting vomiting, independently of any effect arising from the mere quantity of matter introduced into the stomach, or of any nauseous taste or flavour. The susceptibility of vomiting is very differently modified in different individuals, and is often considerably varied by disease. Emetics are employed in many diseases. When any morbid affection depends upon, or is immediately connected with, over-dis-

tension of the stomach, or the presence of acrid or indigestible matters, vomiting gives speedy relief. Hence, their utility, when too much, or improper food has been taken, and in cases of intoxication, and of poisoning. They are serviceable, also, in jaundice, arising from calculi, obstructing the course of the bile in the gall ducts; in the early stages of catarrhs, inflammations of the throat, consumption, diarrhœa, and dysentery, and in the forming stage of various febrile affections. In nauseating doses, they are useful in arresting discharges of blood from the lungs, bowels, and uterus, in dropsies, swelled testicles, buboes, &c.

Their administration is injurious and dangerous in every case in which there is a determination of blood to the head, especially in full habits—in all inflammations of the brain, stomach, and bowels—in the advanced stages of pregnancy—in persons affected with hernia, or prolapsus of the womb, and whenever extreme debility is present. The frequent use of emetics produces irritation of the stomach, and impairs digestion. An emetic should, in general, be administered in a fluid form, and its operation may be promoted by drinking any tepid diluent, or weak bitter infusion, as that of chamomile flowers, &c. The principal emetics are tartarized antimony, ipecacuanha, sulphate of copper, sulphate of zinc, mustard seed, muriate of soda, and squill.

EMMENAGOGUES.

Medicines which are supposed to have the power of acting on the womb, and promoting the menstrual discharge, are termed emmenagogues. It is now acknowledged by all judicious physicians, that we know of no substance which has a direct and specific action on the womb; and that whatever success any means may appear to have had, in producing the monthly discharge, this is owing to some action on the whole system, or on the neighbouring parts, from which that action has been communicated, by sympathy,

to the womb. The non-appearance of the menses in young women, or their obstruction in those who have had them established for some time, is generally owing to some disorder of the system; and whatever removes this, and produces the wished-for discharge, may be styled an emmenagogue. Sometimes tonics, sometimes purgatives, have this effect; or if the system be too plethoric, bleeding may contribute to bring on the discharge. Electricity, aloes, cantharides, turpentine, cupping on the loins, or warm fomentation, may all be useful, when directed by a practitioner of skill, who knows the proper time and manner of their exhibition. Sometimes good air, exercise, and a regulation of the diet, are all that is required to establish the monthly discharge. Women are very apt to lay a great stress on the importance of regularity in this function, and to be very uneasy if it be too long in occurring in young females; but there is no fixed period for its beginning, and while the health is uninjured, they should not take strong medicines with the view of forcing on the discharge. These, in place of producing the desired effect, will most generally be productive of injury.

EMOLLIENTS.

Emollients are those remedies which, when applied to the solids of the body, render them more soft, lax, and flexible. These are principally oily substances, applied by friction in a warm state, or they are the various forms of fomentations and poultices.

ERRHINES.

Errhines are substances which, when applied to the lining membrane of the nostrils, occasion a discharge of mucous or serous fluid. They have been considered useful in certain affections of the head, in consequence of the evacuation they occasion; but, in this respect, their value has been greatly overrated. They have been recommended in cases of obstinate headache, pains of the ear, inflammation

of the eyes, and chronic affections of the brain—and some writers state, that they have derived advantage from their use under these circumstances. The principal articles of this class are, white and black hellebore, tobacco, sulphate of mercury, asarabacca, ipecacuanha, and marjoram.

EPISPASTICS, OR BLISTERS.

The local effects of a blister are well known. When applied to the skin for a sufficient length of time, it produces an inflammation of the latter, marked by redness and a burning heat, which is followed by the effusion, beneath the cuticle, of a serous fluid, forming what is termed a vesicle; the cuticle being detached to the full extent of the vesicle, from the cutis, or skin beneath. The article most generally employed, and the one best adapted in the majority of cases, to produce a blister, is the Spanish flies made into an ointment. A similar effect will, however, result from the application to the skin of various other substances, as mustard, oil of turpentine, nitric acid, and hot water. Blisters constitute an important remedy in various diseases. They are considered by many as evacuates, in consequence of the discharge of serum which they produce. When applied to an inflammation, seated immediately beneath the skin, it is probable that some good may in this manner be effected. When they are kept open by stimulating applications, so that a constant secretion of pus takes place from their surface, they produce unquestionably very considerable depletion, and may be advantageously resorted to in many cases, where depletion by the lancet, or purgatives, is not advisable. But the remedial effect of blisters, in the greater number of diseases in which they are employed, arises from their determining a greater quantity of blood to the vessels of the surface, and thus unloading the blood-vessels of the internal organs, when these are the seat of inflammation or congestion. Thus, when the brain, the throat, the pleura, lungs, or perito-

neum are inflamed, blisters applied to the scalp, neck, chest, or abdomen, by causing the blood to flow more freely into the vessels of the skin, from the overloaded vessels of the internal membrane or organ, in this manner aid in reducing the disease of which the latter are the seat. Blisters applied to indolent tumours, cause their dispersion by stimulating the absorbents of the parts to increased action. In affections of the brain, as apoplexy, palsy, delirium, violent headache, and convulsions, blisters applied to the back of the neck, or to the ankles, produce often the very best effects. In all fevers, blisters appear to do good by transferring to the skin a part of the irritation under which the internal organ may happen to labour. In the early stages of consumption, and in obstinate catarrhs, blisters to the chest, kept open for a considerable time, are beneficial, by determining the blood from the small vessels of the lungs. In all internal inflammations, they constitute an important remedy by their relieving the overloaded vessels of the parts affected. Blisters have, also, been advantageously applied to the skin when affected with erysipelas; and, to arrest the progress of mortification—to the stomach, in cases of violent vomiting, and along the spine in various spasmodic complaints. In some persons, blisters are very apt to produce strangury, or a difficulty in voiding the urine; this painful affection may in most cases be prevented by drinking plentifully of some mild demulcent fluid. In fevers, and inflammations, the proper period for applying blisters is, after the violence of the disease has been abated, by bleeding and other direct means of evacuation; if applied while the skin is very hot and dry, and the pulse strong and quick, the irritation they excite is very apt to prove injurious by increasing these symptoms. A vesicatory of cantharides, in general, requires to be kept on twelve hours in an adult, before it produces its full effect. When the vesication has occurred, the cuticle should be divided, at the most depend-

ing part, by a pair of scissors, the serum allowed to escape, and the blistered part is then to be dressed with sweet oil, fresh lard, or simple cerate; or, if it be desirous to produce a greater discharge, or keep up the inflammation for some time, it may be covered with a wilted cabbage-leaf, or a cloth spread with basilicon, or savine ointment.

ESCHAROTICS.

Escharotics are substances used to destroy a portion of the surface of the body, by the formation of an eschar or slough, or to keep down spongy granulations, or remove diseased parts. Though the contact of heated metals has this effect, the term escharotics is more generally applied to the lunar caustic, and caustic potash, blue vitriol, red precipitate, and burnt alum. The mineral acids are also escharotics, but are less used, in consequence of the difficulty of confining their action to a particular part. Escharotics are used in a variety of chronic diseases, to produce a degree of irritation, and a continued discharge from the surface, with the view of relieving internal organs—hence, they act in the same manner, precisely, as a permanent blister. They are sometimes used to open abscesses, when there is great dread of a cutting instrument; but it is almost always preferable to open them with a knife or lancet. The chief diseases in which escharotics are employed, are palsy, chronic, deep-seated pains of the head, chronic affections of the chest and eyes, and convulsive maladies, as chorea, epilepsy, &c. They are generally termed, when resorted to as remedies for disease, issues.

EXPECTORANTS.

Medicines which are supposed capable of facilitating the excretion of mucus from the chest, that is, from the windpipe, air-cells, and passages of the lungs, are termed expectorants. They are chiefly employed in catarrh, inflammation of the lungs, croup, asthma, consumption, and whooping-cough. The greater number of expectorant medi-

cines, are those which, in larger doses, prove emetic: namely, squills, ipecacuanha, antimony, and aminoniaeum. Besides those medicines which are more commonly called expectorants, there are various other remedies which indirectly have the same effect. Thus, bleeding, blistering, the warm bath, and nauseating doses of emetics; mucilaginous and demulcent fluids, slowly swallowed, as gum-water, liquorice, linseed-tea, barley-water, and oily emulsions, and the inhalation of the steam of hot water, have the effect of promoting expectoration, by relieving the irritation of the lining membrane of the fauces, windpipe and lungs, and restoring its healthy secretions. Opium, also, by removing any remaining irritation of the respiratory organs, after depletion has been carried to a sufficient extent, may be considered as, in some measure, an expectorant. Other substances promote expectoration, by directly stimulating the mucous membrane of the trachea and lungs. These can only be resorted to in the absence of inflammation, or in those cases where there is habitually an excessive secretion of fluids in the lungs, which, by its accumulation, impedes respiration, and causes a constant and troublesome cough; this is particularly the case in chronic catarrhs, in certain cases of asthma, and in the catarrhal affections, occurring in old persons. The principal stimulating expectorants, are the fumes of burning tar, the vapour of vinegar, the balsam of copaiba, and tolu, seneca root, garlic, Indian turnip, assafetida, &c.

FRICTION.

Friction is a topical remedy, applied by rubbing the skin with the dry hand, with a dry cloth, or with a flesh-brush. Friction is particularly useful in indolent stiffness of the joints, and in rickets; it is said, when diligently employed, to cure both. The effects of friction are, to determine the blood to the surface, to promote the healthy action of the skin, to relieve pains from torpor, to give tone and strength to the

system, and to excite the absorbents to increased action. Friction is an excellent remedy in chronic diseases of the chest, indigestion, diarrhoea, costiveness, disposition to colic, pains of the joints, chronic rheumatism; in certain diseases of the skin, swellings of the legs, and in nervous affections generally. In most cases, premising the use of the warm bath, will increase the efficacy of this remedy.

GARGLES.

A gargle is a wash for the mouth and throat. This is highly useful and necessary in many diseases of those parts. In the common inflammatory sore throat, astringent gargles should be employed at the very commencement, and, in many cases, a threatened sore throat is prevented by their timely use. They may be made of vinegar and water, sweetened with honey or sugar; or of diluted sulphuric acid and water, or the infusion of red rose leaves, to which some drops of sulphuric acid have been added. Sage tea, with the addition of alum and ho-makes a very useful gargle. In the ulcerated and putrid sore throat, which accompanies scarlet fever, the gargles must be of a very stimulant nature; thus, an infusion of cayenne pepper with vinegar, may be frequently employed as a gargle; it is made by taking a table-spoonful of cayenne pepper, and a like quantity of common salt, infusing them in a pint of boiling water, then straining the liquor, and adding half a pint of vinegar. Much of the benefit of a gargle is derived from its being used frequently; and the patient should be encouraged to do so, notwithstanding the temporary inconvenience it puts him to.

HYDRAGOGUES.

Hydragogues are purgatives which produce large watery evacuations from the bowels, and in this manner cause the removal of dropsical collections from the different cavities of the body. The principal hydragogues are, cream

of tartar by itself or combined with jalap; gamboge and elaterium.

LEECHES.

The leech is a well-known species of worm that lives in water, and is applied to various parts of the body, to draw blood for the cure of disease. The medicinal leech has a flat slimy body, composed of rings, tapering towards the head; it is commonly about two inches long, about the thickness of a goose-quill; but it can lengthen and shorten itself very much. The bite of those leeches which are found in stagnant waters and marshes, is said to cause pain and inflammation; such leeches, therefore, as well as the horse-leech, are not used, and those are preferred which are taken in the summer season, in waters having a clear sandy bottom. A leech attaches itself to any substance to which it wishes to fix, by an apparatus, constructed on the principle of a leather-sucker, or air-pump, which it has at both ends; the one at the head being like a horse-shoe, with a triangular mouth in the centre, and that at the other end being circular. When they fix on the body, they inflict a small wound of three little flaps, from which they suck blood until they are gorged, or till they are forced to quit their hold; which is best done by sprinkling on them a little salt.

The cases are very numerous in which leeches are useful; and in children, where it is so difficult to get blood from a vein, leeches furnish an excellent resource. Leeches are useful in the various inflammatory diseases, as ophthalmia, sore throat, rheumatism, tooth-ache, inflammation of the bowels, and uterus; in measles and scarlet fever, in hooping-cough, in head-ache, in bruises and in piles.

It is sometimes difficult to get leeches to fix; to cause them to attach themselves, they should be kept hungry, and taken out of the water for some minutes before they are to be used, and should be dried with a soft cloth immediately before they are applied. The

part should be well washed with soap and water, then with milk and water, and wetted with blood or cream, and if there be many strong hairs, they should be shaved off. A large leech will draw about an ounce of blood, that is about a table-spoonful, but those in common use seldom draw more than half this quantity. When leeches fall off, the bleeding may be encouraged to a considerable extent, by bathing the parts with warm water, or by applying large poultices of bread and milk, or applying cupping-glasses. It is sometimes difficult to stop the bleeding, and the surgeon is sent for in great alarm, especially when leeches have been applied to young children. The bleeding may generally be stopped by proper pressure, with a little lint, or similar downy substance, for a due length of time, though this is sometimes very difficult, when there is no bone to press against; touching the wound with lunar caustic, will almost certainly succeed; but we must take care that the flowing blood do not wash the caustic down about the neighbouring parts. Sometimes the wounds made by leeches, give rise to a good deal of pain, swelling, and extensive inflammation. The best application is a cooling lotion of sugar of lead, or diluted alcohol and water, or vinegar and water. If the pain and tension continue long, an emollient poultice of bread and milk will be useful.

Salt is frequently thrown on the animal to make it disgorge the blood which it has sucked, but the leech is generally killed in the experiment. A more easy way to discharge the blood, and save the animal, is to hold it in the hand, and gently squeeze it in a napkin, from the head downward; the blood flows copiously from what may appear the anus, or through the ruptured extremity of the intestinal canal, and the worm is not essentially injured.

Leeches are best kept in a bottle, half filled with pure spring or river water, covered with gauze or fine muslin. It is better not to put bran or any

other substance into the water, but to change it pretty frequently. Leeches are said to be very sensible to the electrical changes of the atmosphere.

LITHONTRIPTICS.

Medicines which are supposed to have the power of dissolving a stone in the bladder, are termed lithontriptics. The perfection of a lithontriptic medicine would be, that it could be easily taken into the stomach, pass through the various organs of the body, till it reaches the kidneys and bladder, and there dissolve the stone, or break it down into particles small enough to pass by the urethra. But the existence of such a substance is against all probability. Even when a stone is thrown into a very active fluid, out of the body, it is not easily nor totally dissolved; and the fluid which has power on one stone has no power on others; and it is against all the known laws of the animal economy, to suppose that any such dissolving fluid could reach the bladder, without destroying many part and if it did get there, it would infallibly destroy the bladder itself. The only medicine having the most distant pretensions to do good in stone, is potash, or its carbonate; and this it does, not by reaching the calculus in such a state as to dissolve it in the same way as muriatic acid would dissolve a lump of marble, but by preventing that acidity in the stomach and first passages, on which the formation of the stone seems in many cases to depend. This takes place in the following way: in healthy urine, there is a considerable proportion of an acid, called lithic, or uric acid, which is so combined with the other ingredients, that the whole continue in solution. But if the digestion is bad, another acid is formed, and being carried to the kidneys, combines with the materials there, and the uric acid is precipitated in an insoluble form. This may happen in the kidney, or ureter, and accordingly solid uric acid will be deposited in the bladder, and other matters may gather round it, and form a large stone. In order, there-

fore, to hinder the formation of unhealthy acid, and the consequent deposition of the uric acid, we aid the digestion by bitters and tonics, and correct acidity by alkalies and lime-water. As several salts are discharged by sweat and insensible perspiration, so if the functions of the skin are not duly performed, these salts may find their way to the kidneys, and occasion the deposition of the uric acid. The perspiration, therefore, is to be regulated by diaphoretic medicines, by exercise, and proper diet and clothing. We judge of the presence of an excess of uric acid, by examining the sediment deposited from the urine, or the small fragments which are sometimes passed with it. The uric acid generally leaves a red deposit. In this state of the system, alkalies are the best remedies. Ten drops of the solution of caustic potash, are to be given three or four times a day, in a cup-full of beef-tea, or other convenient liquid. It is found that the carbonates of the alkalies answer the purpose of counteracting the tendency to form uric acid, equally

with the pure alkalies, and they are not so apt to disagree with the stomach. The bi-carbonate of potash may be given in the dose of a drachm four times a day, dissolved in two ounces of water, and flavoured with liquorice or cinnamon-water.

The carbonate of magnesia has been given as a lithontriptic, or as a counteractor of the tendency to stone; but it is not to be recommended, as it is rather insoluble, and though it may correct acidity in the stomach, no part of it will be absorbed to reach the kidneys or bladder. Lime-water has also been much recommended as fulfilling the same indications.

When, however, calcareous or magnesian salts prevail in the urine, alkalies are improper. In these cases, acids are to be given; and we judge them to be proper, when the phosphates are deposited by the urine in a white sediment. The muriatic acid is as convenient as any other. But some calculi are composed alternately of acid and

alkaline layers; in these, neither acids nor alkalies alone will be the proper lithontriptics. We are to give sometimes acids, and sometimes alkalies, as the deposits of the urine may direct us. The proposal which has been made, of injecting solvents for the stone into the bladder, would be an excellent one, could we insure the bladder from injury; but the irritable state of that organ renders it quite impossible to keep the solvent long enough in contact with the stone, to do any service.

MINERAL WATER.

Those waters which, running over certain soluble substances in their course, become impregnated with the taste, smell, and other properties of those substances, and, therefore, are of service in the cure of diseases, or in the regulation of the health. The most celebrated waters are those of the following classes: cold, hot, sulphurous, chalybeate, saline and purgative. Some of these act as tonics; some promote the secretions of the liver and alimentary canal; some excite the healthy action of the skin, &c. They are used both internally, and as a bath, externally. The principal circumstances under which they are directed, are for the removal of chronic diseases of the internal organs; affections of the joints and muscles of long standing, affections of the skin, and during convalescence, from nearly all diseases. They are valuable remedies in that condition of health, vaguely termed nervous. Without entering upon the curative properties of each of these waters, it may be proper here to mention some particulars which are common to them all, and to detail some reasons why mineral waters are so often recommended by physicians. The diseases in which mineral waters are directed, are chiefly those which are well known by the name of *nervous*; and they generally occur in individuals of an opulent rank in life, who alone have it in their power to go to watering places. Their complaints generally arise from the want of active and interesting employment, from de-

ficiency of exercise, and from indulgence in easy and luxurious living. Placed by their fortune above the need of both bodily and mental labour, and in early life having had ample means of sensual or intemperate enjoyment, they have acquired no taste for the cheap and easy pleasures of learning and virtue; and are, therefore, fain to indulge in the pleasures of the table, to wear away the tedious hours for which they cannot find a proper use. Hence arise indigestion, flatulence, costiveness, obesity, gout, hypochondriasis, and all the uncomfortable and alarming feelings which originate from these and similar affections. When such patients are sent to a watering-place, they are benefited in a variety of ways. Their usual indolent habits are broken in upon; they are caused to exert their limbs; they see other scenery; the unhealthy air of the town is exchanged for the pure air of the country; they must take some degree of active exercise daily, were it merely to walk to the spot where the water is drawn; and however powerful money may be, there are many of their former means of dissipation which they can not procure in their new abode. Add to this, that the medicinal effects of various waters are of the most salutary kind, promoting the regular discharge from the bowels, strengthening the stomach by their coldness, or their chalybeate properties; or even in some cases, a nausea, or disgust at food is created, which prevents patients from taking in more than the stomach can digest, and thus gives that important, but overwrought organ time to recover the tone and activity it had lost. The proper administration of mineral waters, so as to derive from them the beneficial effects they are calculated to impart to the diseased frame, requires, however, very considerable judgment. All the varieties of mineral waters are not equally adapted to the case of every invalid; when they are indiscriminately and rashly resorted to, often far more harm than good is produced.

NARCOTICS.

Narcotic medicines are those substances which have the property of diminishing the action of the nervous and vascular systems, and of inducing sleep. These medicines are also called sedatives, anodynes, and soporifics. They appear to act by first exciting, more or less, the energy of the nervous and vascular systems, which excitement is followed by a degree of collapse altogether disproportioned to the preceding excitement. This depression is in many cases so rapid, that the previous excitement is not perceived, and hence, certain articles of this class have been regarded as direct sedatives. The principal substances possessed of narcotic properties, are opium, hyoscyamus, (henbane,) belladonna, camphor, nemlock, foxglove, stramonium. Each of these substances seems to have some peculiar manner of operation; and when one narcotic fails, another will often induce sleep.

RUBEFACIENTS.

Rubefacients are remedies which excite the vessels of the skin, and increase its heat and redness. They act precisely in the same manner as blisters, excepting that they produce no vesication; hence they are employed like them to relieve internal irritations, inflammations, and congestions, or to excite the absorbents of some external part. The principal rubefacients are, dry frictions, or frictions with some volatile liniment, as the liniment of ammonia, soap liniment, decoction of turpentine and cantharides, frictions with salt, or dry mustard, mustard poultices, &c.

SEDATIVES.

Medicines which have the power of allaying the actions of the system generally, or of lessening the exercise of some particular function, are termed sedatives. It is believed by some physicians that no such medicine as a sedative, correctly speaking, exists; it

being contended that the articles which exert, apparently, a sedative effect, are in reality stimulants; and that it is only the exhaustion occurring after the preceding excitement, that gives them the appearance of having acted as sedatives. There are, nevertheless, certain remedies the most striking effect of which is to allay inordinate action, particularly of the heart and arteries, and which may hence be ranked as sedatives. The principal of these are, blood-letting, cold, tartarized antimony, in minute doses, digitalis, prussic acid, and opium.

SIALAGOGUES.

Sialagogues are medicines which increase the flow of the saliva. This effect may be produced by chewing various aerid substances, as tobacco, ginger, &c., which, by stimulating the termination of the ducts, excite the glands to the secretion of an augmented amount of saliva. The principal sialagogue, however, is mercury; which taken into the stomach, or introduced into the system by inunction, acts on the salivary glands with peculiar energy, and causes the discharge of immense quantities of saliva, producing at the same time violent inflammation and swelling of the gums, tongue and cheeks. There are few, if any diseases, however, in which the production of salivation is useful.

STIMULANTS.

Medicines or other circumstances capable of exciting the vital energy, whether as exerted in sensation or motion, are included under the head of stimulants. These are of various kinds. 1. They are such as are applied to the stomach: alcohol, tinctures, wine, &c. In certain states of debility and disease, a very small portion of the mildest food will act as a stimulant. 2. Diffusible stimulants, or such as are quickly and uniformly extended over the whole frame: hartshorn, heat, electricity, and galvanism. 3. Tonic stimulants; bark, the preparations of iron, aliment, mustard, cantharides.

It will be seen from the above slight

enumeration, that in speaking of substances of the first class, we use the term *stimulants* to denote nearly the same thing as cordials; and that the other classes are arranged along with them on account of the similarity of their action. The cases in which general stimulants are useful are those of torpor and debility; but the power of some stimulants is so great, and the constitution is at times so easily affected by them, that much skill and caution are required in their exhibition. Suppose a person debilitated and torpid, after a long continued fever, or other illness; it would be desirable, no doubt, to restore his strength as quickly as possible. But this is not to be effected by strong stimulants; to him, the use of such in any considerable quantity would probably be fatal. In all diseases of excitement, as inflammations and fevers, stimulants are to be carefully avoided; as well as in all cases in which the stomach is labouring under irritation, or in which any affection of the brain is present.

SUPPOSITORIES.

Suppositories are medicinal substances, introduced, in a solid form, into the rectum. Sometimes they are given to produce a discharge from the bowels, and may be applied even to very young infants. A small bit of soap may be used for them. Suppositories are also employed to destroy the worms called ascarides; aloes and soap are good in this case. Opium may be introduced as a suppository, to relieve pain and irritation, arising from diseases of the bladder, the womb, and parts in the neighbourhood.

TONICS.

Tonics are those medicines which are supposed to increase the tone or healthy action, or strength of the living system. Under this head might, in fact, be included nearly all the remedies employed for the cure of disease. The term, however, is restricted to a certain class of remedies, the action of which is not properly understood, but

the ultimate effect of which is to increase the power of the muscles, and to promote the functions of digestion, assimilation, and nutrition; and in this manner, the general energies of the system. Tonics are chiefly useful in that state of debility which remains after the complete removal of irritation, or inflammations of internal organs, and are hence chiefly prescribed in the intervals between the paroxysms of intermittent fever, and in the stage of convalescence, subsequent to long continued and debilitating diseases. The principal tonics are the vegetable bitters, bark, and various preparations of iron.

SECTION II.

INDIVIDUAL REMEDIES.

ACIDS.

ACIDS are substances possessed of the following properties. They are sour to the taste, change the blue and purple colours derived from vegetable substances to a red; they form neutral compounds, called salts, with alkalies and earths, in which the peculiar properties of both the components are lost, and they unite with the metallic oxides, constituting a peculiar class of salts: they also unite with water in any proportion. With the exception of the muriatic and prussic acids, which are compounds; the one of chlorine and hydrogen, and the other of cyanogen and hydrogen; all the other acids employed as medicines, are supposed to consist of oxygen, with one or more combustible substances. The names of the acids formed from the same base, change their terminations in proportion to the oxygen they are presumed to contain; thus, when sulphur is united with its full proportion of oxygen, the acid is termed *sulphuric*; when combined with a smaller proportion of oxygen, it is called *sulphurous acid*—the terminations *ic* and *ous*, denoting the quantity more or less of

oxygen or acidity they contain. The mineral acids, or those obtained by the combination of oxygen with a mineral base, are employed in medicine principally as tonics and astringents; the vegetable acids, as vinegar or acetic acid, citric acid and tartaric acid, are chiefly administered, largely diluted with water, as a grateful and cooling drink in fevers, or as a remedy in the cure of scurvy. The prussic acid is given in very minute doses as a sedative, and the muriatic and nitric acids have been supposed to exert an alterative effect on the system.

Acetic acid, or vinegar. Vinegar is obtained by causing certain vegetable juices containing mucilage and sugar to undergo the acetous fermentation—in this state, however, the acid is very impure, containing a quantity of water, mucilage, tartaric acid, sugar, extractive matter, tartrate of potash, and some alcohol. To rid it of these, it is submitted to distillation. Acetic acid or distilled vinegar, is capable of dissolving all those vegetable principles which are soluble in water, and in some cases, as in *squills*, *colchicum* and several *aromatics*, the medicinal properties of the vegetable are extracted by the acetic acid for use: hence vinegar of squill and of colchicum, are constantly employed in the cure of diseases. The strongest distilled vinegar has a very pungent smell, and when applied to the skin causes it to become red and inflamed, or if its application be continued for a sufficient length of time, it will raise a blister; hence, it is used as a rubefacient, or as an escharotic for destroying warts; its fumes are also sometimes applied to the nostrils in fainting, asphyxia, hysterics, and head-aches. Internally, acetic acid largely diluted with water, is used as a drink in febrile diseases, and scurvy; also to counteract the effects of opium and narcotic poisons, *after* the latter have been ejected from the stomach, in order to relieve the consecutive stupor and delirium. The steam of vinegar is also inhaled in certain cases of catarrh of long standing; in chronic inflamma-

tions of the throat; in putrid sore throat, &c. It has also been directed as a wash to hasten the separation of dead bone in caries.

Aromatic vinegar, or vinegar holding in solution the essential oils of lavender, sage, rosemary, and cloves. It has a pungent aromatic odour, and is used as a stimulant to the nostrils in fainting and sick head-ache, and as a grateful perfume in sick rooms; it was formerly called the *vinegar of the four thieves*, and was erroneously supposed to be a preventive of infection.

Carbonic acid. When charcoal is burned in oxygen gas, provided the materials are in due proportion, the oxygen gas disappears, and in its stead we obtain a gas equally colourless and transparent, but possessed of very different properties. The new-formed gas extinguishes flame, and is fatal to men and animals who breathe it. It is this gas which arises when charcoal is burned in small ill-ventilated rooms, and which so often causes the death of persons who occupy them, and which also occasions fatal accidents in breweries, and other places where fermentation goes on; it being extricated in great profusion during the process of the fermentation of vegetable juices. It also taints the air of mines; and is called by the miners the fire-damp. When a person is exposed to breathe this acid, the first sensation is a slight feeling of weakness, and a degree of giddiness, with a glow in the face and neck. Shortly after, he falls down, becomes insensible, and breathes loud as in apoplexy. Unless relief be obtained, death very quickly ensues. There is usually foaming at the mouth, with great suffusion of dark-coloured blood over the face and neck, and other marks of accumulation of blood in the vessels of the brain. If discovered in time, the person, who is suffering under its effects, must be brought to the open air in a cool place, and the chest compressed to expel the noxious air, which will not easily escape of itself, as it is heavier than common air. A quantity of blood must be drawn, and

cold water poured on the head, or dashed over the face. Mustard poultices applied to the feet, will assist in the relief of the patient.

Though carbonic acid applied to the lungs be thus deadly, it has very salutary and beneficial effects when taken into the stomach. The mineral waters commonly called acidulous, and which sparkle when first drawn, or when poured from one glass to another, owe this property to the carbonic acid which they contain; and hence, not only are the springs which afford water containing this acid, resorted to with great benefit by persons labouring under stomach complaints: but artificial imitations of the acidulous waters are in frequent use, under the name of soda water, aerated alkaline water, and the like. The waters sold under the name of soda water, really contain little or no soda, and are chiefly water impregnated with carbonic acid. It is carbonic acid that gives the briskness to malt liquors, to cider, and to champagne wine.

Carbonic acid is rapidly taken up by lime-water; and as there is always a small portion of carbonic acid in the air, lime-water can not be kept pure, unless the atmospheric air be completely excluded. Hence, a certain way of clearing confined places from carbonic acid, is by pouring large quantities of lime-water from one vessel into another, from a considerable height, and in a broken stream.

Citric acid. The acid obtained from oranges and lemons. It is also found in many other fruits, as the cranberry, the bird-cherry, and the fruit of the dog-rose. Strawberries, raspberries, and gooseberries also contain it, mixed with the malic acid. The simple expressed juice of lemons will not keep, on account of the syrup, mucilage, and other matters which it contains, and which cause it to ferment. This is much to be regretted, as lemon-juice is the great specific against sea-scurvy, and is possessed of virtues sufficient to disarm that dreadful scourge of all its terrors. A method was invented by

the great Swedish chemist Scheele, of obtaining the citric acid pure and crystallized; and by his process, or some similar one, it is manufactured in great quantities, and sold under the name of the concrete salt of lemons. The process is the following: Powdered chalk is added to lemon juice, by which the carbonic acid is disengaged, while the lime combines with the citric acid, forming citrate of lime. To this, sulphuric acid is added, which, by uniting with the lime, forms a sulphate of lime, which being insoluble, falls to the bottom, while the citric acid remains dissolved in the water. This is finally evaporated and crystallized. Lemon-juice is used in making the saline effervescing draughts, so useful in many cases of vomiting; and when lemon-juice can not be procured, the crystallized citric acid, dissolved in water, will answer the purpose. For sea-scurvy, the lemon-juice, as nearly fresh as possible, is the best; but in some situations we must be content with the crystallized acid. The citric acid is an excellent refrigerant, and, as such, is given in many feverish disorders. Lemonade, or diluted lemon-juice, sweetened with sugar, is a pleasant drink in fever.

Muriatic acid. Muriatic acid is generally in a liquid form, having a strong and pungent smell, and a taste very sour and caustic; exposed to the air, it emits white fumes. It is a solution of the muriatic acid gas in water, which deserves attention in a medical point of view, as being employed in fumigation for destroying contagion. It is extricated for this purpose, by pouring sulphuric acid on common salt, by which the fumes of muriatic acid are disengaged, and sulphate of soda is formed. Muriatic acid has been successfully administered in the latter stages of typhus and scarlet fevers, in the proportion of a drachm to a pint of gruel or barley-water, with sugar or syrup to correct its acidity, and to render it more palatable. This mixture is to be used for common drink; but must not be put into a leaden or pewter

vessel or spoon. Muriatic acid is also recommended as good against worms, in the dose of from five to twenty drops in a strong infusion of quassia, frequently repeated.

Nitric acid, or aquafortis. A strong mineral acid, highly corrosive. When applied to the skin, it communicates to it a yellow stain. It has been used as a medicine, largely diluted with water, and with reported good success, in a variety of diseases. In low nervous fever, it may be used to acidulate the drink of the patient; and in liver complaints, and in syphilis, it has been thought capable, by some, of even superseding the use of mercury. It is at least a good auxiliary in the cure of these diseases, and may be taken to the amount of two drachms daily in water, or any other vehicle that may be agreeable to the patient. In some obstinate diseases of the skin, it is used as a vesicatory, being applied to a small portion of the skin at a time. The fumes of nitric acid have been employed to destroy the contagion of fevers, by pouring sulphuric acid on nitrate of potash; the nitric acid is disengaged, and rises in vapour through the apartment. It is thought that the caustic quality of undiluted nitric acid would render it a good means of destroying the poison introduced by the bite of a mad animal, were it applied immediately to the wounded part.

Nitro-muriatic acid. Nitro-muriatic acid is a mixture of two parts of muriatic acid, and one of nitric acid, and is famous under the name of *aqua regia*, as having the power of dissolving gold. Of late years, a bath of nitro-muriatic acid has been recommended as an alterative, in the hepatic affections so common to those who have resided long in warm climates. The acid should be diluted so as to have nearly the acidity of strong vinegar, and is to be applied to the body by a sponge, or used as a bath to the feet and legs; it generally produces a little heat of skin, thirst, and a peculiar taste in the mouth; the bowels, after a time, become affected, and the head-ache, the irritability

and pain of the side, gradually give way.

Oxalic acid. The acid of wood-sorrel, obtained from many vegetables by certain processes. It is obtained in a concrete form, and becomes an object of considerable interest, from its poisonous properties, and the resemblance of its crystals to Epsom salts, for which, by mistake, it has been occasionally taken, and in this manner, caused the death of the individuals. From its being employed to clean boot-tops, it is often kept for domestic use, and being mistaken for salts, has acted as a virulent poison. The symptoms produced are those of great pain, and a burning sensation at the stomach; vomiting, inflammation, and bloody stools. When a person is discovered, in time, to have swallowed oxalic acid, the most likely means of relief is to give very plentifully of lime-water or chalk, combined with gruel or gum-water: by this, an oxalate of lime will be formed in the stomach, which is comparatively innocuous. The danger and the frequency of this accident, call strongly for the most minute attention on the part of apothecaries and druggists. There is no test of oxalic acid so good as the taste, which should always be exercised when there is any doubt. The Epsom salts are crystallized in large crystals, which the druggists very properly say can not be mistaken for oxalic acid; but it would be still better if they could impart some striking distinction to the oxalic acid, as there is no great danger to life though the salts should be used, where the acid is intended; but very great risk when the acid is taken as sulphate of magnesia.

Pyroligneous acid; acetic acid obtained by the destructive distillation of wood of any kind. When purified, it has a grateful and very pungent odour, and an acid and somewhat acrid taste. The impure pyroligneous acid, which is contaminated with tar, has, it is said, been very successfully employed as a lotion in leprosy, scrofulous ulcerations, chronic inflammation of the eye

and edges of the eyelids, and for promoting the suppuration of indolent ulcers, or those connected with carious bone. It has also been injected into sinuses, to promote their healing.

Mr. Mongé, a French chemist, discovered that the impure pyroligneous acid has the property of preventing the decomposition of animal substances; it being sufficient for this purpose, to plunge the meat for a few moments in the acid, to preserve it as long as required. Putrefaction, it is said, is caused by this means not only to stop, but to retrograde.

Prussic acid. A colourless transparent liquid, but occasionally having a yellow tinge; it has a peculiar odour, which, when diffused through the air, resembles that of bitter almonds; its taste is bitterish and peculiar, but its properties are soon lost by exposure to air and light. Modern chemists have ascertained, that prussic acid contains a gaseous and highly inflammable compound of carbon and azote, which they term *cyanogen*, and which is rendered acid by combination with hydrogen. Its composition is indicated by its name of *hydrocyanic acid*. It obtained the name of prussic acid, from its being one of the constituent parts of the dye called Prussian blue. Prussic acid is one of the most virulent and rapid poisons known. According to the French physiologist Magendie, if a single drop of the concentrated acid be put into the throat of a dog, the animal makes two or three deep hurried respirations, and instantly drops down dead; it causes death almost as instantaneously, when dropped under the eyelid; and when it is injected into the jugular vein, the animal drops down dead at the very instant, as if struck with a cannon-ball, or with lightning. The effects of the diluted acid are the same, when the dose is large, but somewhat different when smaller doses are given. Nau sea, salivation, hurried pulse, giddiness and convulsions ensue. It is probable that very large doses occasion death in a few seconds, and at all events, a few minutes will suffice to extinguish life

when the dose is considerable; but if the individual survive thirty or forty minutes, he will very generally recover. Prussic acid acts strongly in several of its combinations, as for instance, prussiate of potash or of ammonia; but the triple prussiates are not poisonous.

The proper treatment of a case of poisoning with prussic acid consists in the use of the cold affusion, and the inhalation of diluted ammonia or chlorine. Venesection is also probably indicated by the signs of congestion in the head. It is right to remember, that on account of the dreadful rapidity of this variety of poisoning, it will rarely be in the physician's power to resort to any treatment soon enough for success; and farther, that his chance of success must generally be feeble, even when the case is taken in time, because when hydrocyanic acid is swallowed by man, the dose is generally so large as not to be counteracted by any remedies.

This peculiar acid exists in a great variety of native combinations in the vegetable kingdom, as in bitter almonds, cherry-laurel, the kernels of the peach-tree, and of various fruits, especially in the thin skin which covers the kernel; and the distilled water and essential oils of some of them are nearly as rapidly destructive as the acid itself.

Prussic acid has been introduced into medicine as a remedy in pulmonary and other inflammations, and in heart-burn and other stomach complaints, and as a lotion in some diseases of the skin; but it has not been found very useful, and is not much employed. The dose is from two to four or six drops of the diluted acid, in any convenient vehicle.

Sulphuric acid. The acid composed of sulphur and oxygen, obtained by burning sulphur in the presence of oxygen gas. It is commonly called *Oil of Vitriol*. It is possessed of highly corrosive qualities; but when properly diluted, it is a very useful cooling and astringent medicine. It is kept in the shops diluted with seven times its weight

of water; and of this diluted acid, ten drops in a glass of cold water may be taken twice a day, in discharges of blood from the uterus or lungs. Or it may be mixed with simple syrup, or syrup of Tolu, in the proportion of one drachm of the acid to four ounces of syrup, and the patient's drink may be acidulated with the mixture. To prevent it from injuring the enamel of the teeth, it may be sucked through a quill, and the mouth must be carefully washed after taking it. The infusion of red rose leaves, acidulated and coloured red by this acid, is an elegant form for administering it, either internally, or as a gargle.

When sulphuric acid has been swallowed by mistake, the consequences are inflammation of the mouth, throat, and stomach, and all its attendant dangers and sufferings. Little can be done; but we may try dilution, by causing the patient to drink largely of carbonate of potash dissolved in warm water, and then endeavour to excite vomiting by irritating the fauces with a feather, or by thrusting a finger down the throat. The after-treatment must be directed by the symptoms of each case.

Tartaric acid. Tartaric acid is obtained from cream of tartar, by adding to the latter thirty parts to the hundred of powdered chalk, and then dissolving the mixture in ten times its weight of boiling water. Insoluble tartrate of lime is thus formed, which is to be washed three or four times with cold water. To it is then to be added concentrated sulphuric acid, equal in weight to the chalk employed. Insoluble sulphate of lime and tartaric acid in solution, are thus obtained; the latter may be crystallized by evaporation, and purified by re-solution and evaporation. The taste of tartaric acid is very sour, but agreeable. It is used as a cheap substitute for the concrete acid of lemons in the formation of soda and Seidlitz powders. The white papers of the soda powders of the shops contain tartaric acid, and the blue contain bicarbonate of potash.

ACONITE.

Wolf's bane—Aconitum Napellus.

A plant found in different parts of Germany, and cultivated in our gardens. Its effects on the animal body are narcotic or stupefying; its active qualities appear to reside chiefly in the root. When chewed, a slight sensation of acrimony is first perceived, afterwards the point of the tongue appears to lose its feeling, and a sharp heat of the mouth succeeds, followed by trembling and chilliness. The fatal symptoms are convulsions, giddiness, loss of reason, violent purging, faintings, cold sweats, and death. If it be soon discovered that a person has swallowed any of this poisonous substance, the stomach must be quickly evacuated; and one of the readiest means of doing this, is to give thirty grains of sulphate of zinc, (white vitriol) dissolved in water. If this is not at hand, a spoonful of table mustard, or large draughts of warm water may be tried; but when the poison itself has brought on the vomiting, and other bad symptoms occur, we must endeavour to allay them by brandy, ether, or other cordials, though our hopes of doing so can not be sanguine. About sixty years ago, this substance was employed in medicine, first by Dr. Storck, of Vienna; and, like most substances newly discovered or newly applied, was highly extolled; but it is now less used than formerly. The extract, or inspissated juice, is said to have a beneficial effect in some cases of chronic rheumatism, and in intermittent fevers, connected with disease of the viscera or internal organs. The dose is from half a grain to two grains.

ACORN COFFEE.

A coffee made from one ounce of roasted acorns and a pint of boiling water, and used in the dose of three or four tea-cupfuls in the day, is highly extolled by the Germans in scrofula, disease of the mesenteric glands, commencing rickets, asthma, and cough. The physicians in this country have

little experience of the effects of this article.

ADHESIVE PLASTER.

A plaster which, when spread on linen, is used by surgeons to retain the edges of wounds in contact, to promote the healing of ulcers, after granulation has commenced, and for other purposes. It is applied across the wound or ulcer in narrow strips, which are placed a small distance apart, to allow of the escape of whatever discharges may occur. It is made by boiling together semi-vitrified oxyde of lead, olive oil, and water, over a gentle fire; of the product, when cold, six parts are melted with one of yellow resin.

ALOES.

The aloes is a well known and very useful purgative medicine. It is a gum resin, or substance soluble in diluted spirits, and is obtained from a plant which grows in Barbadoes, at the Cape of Good Hope, and in the island of Socotra in the Indian Ocean. It is prepared by pulling off the leaves, from which the juice is squeezed out, and afterwards boiled and skimmed. Its taste is intensely bitter and disagreeable, though it has an aromatic flavour. Aloes is a warm, stimulating purgative; and it acts chiefly on the large intestines, seldom producing any watery or fluid stools, but merely promoting the free evacuation of the contents of the bowels. It generally agrees well with the stomach, and by its bitterness promotes appetite and digestion; and it is remarkable with regard to it, that it operates as beneficially in a small as in a large dose; one or two grains will often produce one considerable stool, and twenty grains will do no more; excepting that when given in the last dose, the operation will be attended with griping. Aloes is one of the best remedies for occasional use in cases of habitual costiveness. It is extensively employed by those of studious, sedentary habits, and by females of all classes of society; and from this very general and

indiscriminate use of the article, and from its acting chiefly on the great intestines, it is not wonderful that many instances are known of its producing piles and other irritations of the lower belly and neighbouring parts. It will unquestionably have this effect when frequently taken; and, therefore, however useful aloes may be as a mild and certain evacuant, it will be right for those whose constitutions require frequent purgatives, to interpose, occasionally, a dose of neutral salts, or compound powder of jalap, or infusion of tamarinds with senna. In indolent habits, where costiveness is accompanied by languid circulation, loss of appetite, disinclination to exertion of mind or body, fretfulness of temper, and those symptoms which the unlearned understand so well by the term *nervous*, aloes, in some of its various combinations, is one of the most valuable medicines we possess. The cases in which aloetics should be avoided, are those of persons subject to piles, or to discharges of blood from the bowels, and where inflammation or irritation exists in any of the abdominal organs. From its action on the uterine system, aloes is used in cases where the monthly discharge is obstructed; and for a similar reason, should be used with caution during a state of pregnancy. The dose of aloes is from three to fifteen grains, but from its disagreeable and bitter flavour, it is never given alone, but combined with aromatics or bitters, or made into pills.

The following are some of the most useful forms in which aloes may be taken, with the particular purposes, and times of the day, proper for each. They are kept in the shops of apothecaries, under the name prefixed to each of them.

Aloetic pills; aloes and castile soap, equal parts; for costiveness without any peculiarity of symptoms: two pills for a dose at bed-time.

Aloetic pills with assafœtida; aloes, assafœtida and soap, equal parts; for hysterical affections, with costive-

ness and flatulence: two pills every second night at bed-time.

Aloetic pills with colocynth, commonly called *colocynth pills*; these are given when the simple aloetic pills are found too weak: two pills or three at bed-time.

Pills of aloes with myrrh, or *pillulæ Rufi*; employed in female constitutions, in the full complexion and sluggish habits attendant on the suppression or non-appearance of the monthly discharge: two pills or three may be taken twice or thrice a day.

Rhubarb pills, or *stomachic pills*; these contain a small portion of aloes; they are useful for strengthening the stomach, and gently opening the bowels, and may be taken to the extent of two pills every forenoon, and two in the evening.

The far-famed *Anderson's pills* consist of Barbadoes aloes, with a proportion of jalap and oil of aniseed: one or two for a dose.

There is another kind of pills, which seem a slight variation of the pills called *dinner pills*, or *Lady Webster's*, or *Lady Crespigny's pills*, made of equal parts of rhubarb, aloes, and mastich. This last ingredient is not of much virtue in itself, but makes the solution of the others in the bowels gradual and equal. The dose of these pills, which have not received any particular name, is two or three, and the time for taking them is immediately before dinner; they then mix with the food, prevent flatulency, and are usually found to operate next morning after breakfast.

ALUM.

Alum is a salt composed of sulphuric acid, and *alumine*, a peculiar earth abundant in clay, and a certain amount of potassa. It has a sweetish but powerfully astringent taste; and from its astringent qualities, it is considered useful in restraining discharges of blood, or immoderate secretions; but it is highly dangerous to use large doses of it in fluxes from the intestines. When it is thought advisable to

use alum in discharges of blood, from ten to fifteen grains may be given, and repeated every hour or half hour, for four or five times; but there are few bleedings where it would be safe to trust to this article alone; and in every case attentive discrimination must be employed to ascertain the nature and cause of the bleeding; for alum is not equally proper in all. Burnt alum is used externally in the form of powder as a mild caustic, to prevent the growth of proud flesh; alum is also used in solution as a wash to the skin, and in some cases as a wash for the eye. A styptic wash, of which alum is a principal ingredient, is used for stopping bleedings at the nose; and for this purpose, cloths or pieces of sponge steeped in the liquor are to be applied to the part. By agitating a grain of alum with the white of an egg, a curd is formed, and this is useful in some cases of inflamed eyes, when applied to the eyelids between two folds of fine linen. A very useful *astringent gargle* is made from alum, sage-tea, and honey; a more elegant prescription, however, is three and a half ounces of infusion of roses, ten grains of powdered alum, and three drachms of oxymel, mixed together.

AMBER, THE OIL.

By distilling amber, an oil is obtained, of a pungent and acrid taste, and of a peculiar, but not very unpleasant odour. It is seldom used except as a liniment; and it is one of the ingredients in an empirical remedy called Roche's Embrocation, much used in whooping-cough. Either that or the following may be rubbed on the chest of the patient three times a day: Take equal parts of tincture of camphor, laudanum, and oil of amber, and form a liniment.

AMMONIA.

Ammonia is the pungent volatile substance known by the name of hartshorn. In its pure state it is a gas or permanently elastic fluid, which may be procured from sal-ammoniac by mix-

ing quicklime with it, and distilling when the ammoniacal gas rises. The gas must be passed through mercury, as water rapidly absorbs it. It is composed of three parts of hydrogen and one of azote. Ammonia is usually kept in combination with water, and this solution, commonly called spirit of hartshorn, agrees in its properties with the other alkalies, neutralizing acids, forming soap with oils, and changing the vegetable blues to green. Ammonia, in two at least of its combinations, affords the curious example of two ærial bodies forming a solid when they meet. The muriatic acid gas, and the ammoniacal gas, two invisible transparent fluids, when brought within the sphere of each other's influence, form the solid white substance sal-ammoniac. Carbonate of ammonia also is the production of a gaseous acid, and a gaseous alkali. It is in the form of carbonate, or sub-carbonate, that we find it most convenient to employ ammonia for medicinal purposes, as the peculiar properties of ammonia are so little diminished by the addition of the carbonic acid, that it may be disregarded.

Ammonia is one of the most useful stimulants we possess. Ammonia in water, or the carbonate of ammonia, is useful for arousing the suspended faculties in cases of fainting. It is often used with good effect to stop the fits in hysterical women, and it is applied also, though with less certainty of success, in convulsions or epilepsy; and in cases where spirits, wine, or internal stimulants would be dangerous, ammonia to the nose in the form of gas, may be beneficially employed.

Ammonia is a powerful corrector of acidity in the stomach, even more so than the fixed alkalies, and is useful in those affections of the stomach which are the consequences of irregular living. In hoarseness, proceeding from a relaxed state of the throat, it is highly useful. It may be taken dropped into syrup, to the amount of ten drops four times a day. When sore throat is threatened, a gargle of properly diluted water of ammonia in the pro-

portion of one ounce of ammonia to six of pure water, will often prevent the inflammation from proceeding far; and the same gargle, with an additional ounce or two of water, may be used in the relaxed and swelled state of the tonsils, which some people are subject to in cold damp weather. A mixture of hartshorn and oil is a good embrocation in sore throat, and in other cases, where a heating liniment is wanted, as in palsy, chronic rheumatism, and deep-seated pains. The dose for internal exhibition is from five to ten drops of the undiluted solution of hartshorn, called *aqua ammonia*, or from five to eight grains of the sub-carbonate made into pills. The ammonia may be increased or diminished according to the degree of stimulus required. In some cases of head-ache, ammonia dissolved in spirits, with a proportion of volatile essential oils, is beneficial, in the dose of from ten to forty drops, three or four times a day. The beautiful blue colour in the large jars exhibited in the shops of druggists is produced by adding a quantity of liquid ammonia to a solution of blue vitriol (sulphate of copper) in water.

Muriate of ammonia—*Sal-ammoniac*. A salt formed by the combination of muriatic acid and ammonia. It has an acrid, bitter, and cool taste. It is seldom given internally, but as an external application, it is used dissolved in vinegar or water, in diseases of the brain, as violent head-ache, apoplexy, delirium; to discuss indolent inflammations and tumours; in the treatment of chilblains. In the form of a gargle, it is directed in some diseases of the throat.

AMMONIACUM.

Ammoniacum is the name of a gum used in medicine as a stimulating expectorant, either alone, or combined with squill. In the coughs to which aged persons are sometimes subject, unattended by inflammatory action, but with some degree of spasm, and the secretion of much tough mucus, diffi-

cult to bring up, ten grains of ammoniacum, repeated three times a day, have proved of service in allaying the spasm, and causing the mucous matter to be easily spit up. For a similar purpose, the mixture of ammoniacum made by rubbing the gum with water, may be used in doses of from half an ounce to an ounce; and the same may be given to females in whom it is wished to increase the activity of the uterine system. In long and obstinate colics, proceeding from viscid matter lodged in the intestines, ammoniacum alone, or combined with rhubarb, has produced happy effects. Six grains with ten of rhubarb are a proper dose. The squill pill, which is so useful an expectorant, has ammoniacum as one of its ingredients. It would be as well if this gum had another name, not so similar to ammonia, with which it has no affinity or resemblance.

ANGUSTURA BARK.

The angustura bark is obtained from the *cusparia febrifuga* of Linnæus, the *bonplandia trifoliata* of the modern botanists. It is stimulant and tonic to the organs of digestion, but does not cure intermittents, as was at one time believed. It increases the appetite for food, and does not oppress the stomach as the Peruvian bark is apt to do. It is given in powder, in doses of from five to twenty grains, or in infusion, one drachm of the bark to four ounces of water; or in tincture, in the dose of one or two drachms, or in the form of watery extract.

There is a substance called fine angustura, which is the bark of a different plant, the *brucea antidysenterica*, and contains an active poison. Its virulence depends on an alkaloid body, to which its discoverers, Pelletan and Caventou, have given the name of Brucea. It is said to produce tetanus, without affecting the intellectual faculties. The brucean bark is characterized by having its outer bark covered with a matter which has the appearance of rust of iron.

ANTIMONY.

Antimony is a metal from which are derived some of the most celebrated and useful substances employed in the practice of physic. The ancients were acquainted with an ore of it, which was called *stibium*; but it does not appear that they considered this substance to contain a metal, or that they knew what modern chemists call antimony, in a state of purity. It is said to have obtained its name, which signifies *hostile to monks*, in consequence of the alarming and destructive effects it produced among the inhabitants of a certain monastery, to whom it was given by Basil Valentine, one of their brethren, from having observed that pigs that had eaten of madder, with which some ore of the metal was accidentally mixed, became thriving and fat. He wished to produce the same healthy and respectable appearance on his brethren, but the subjects of the experiment not being precisely the same, what fattened the swine, killed the monks.

No metal, not even mercury itself, has been tortured into such a variety of forms by the chemists; no drug has excited more the attention of physicians. Some considered it as a specific for every disease, others contended that it should be detested as a virulent poison. The parliament of Paris condemned it by public authority; and by a singular coincidence, their great monarch, Louis XV. nearly lost his life by an over-dose of this medicine; at least, this is told by Guy Patin, who wrote against antimony with great virulence. After many plans proposed and rejected, modern pharmacy is contented with a very few preparations of antimony; and practitioners find them sufficient for every useful purpose, and freed from the uncertain doses and dangerous forms which annoyed their predecessors.

Antimony, as a medicine, is valuable for its emetic powers; and by skillful management it is made a useful sudorific, and is also employed to

diminish too great excitement of the vascular system.

Emetic tartar. The preparation of antimony most to be depended on is tartar emetic, so called because we boil the cream of tartar and crocus of antimony together in water, and thus prepare the salt so generally used in medicine. Its chemical name is the tartrate of antimony and potass.

Tartar emetic is given in doses of from one grain to three, dissolved in water; and in these doses it proves powerfully emetic, occasioning very complete clearing out of the stomach, considerable depression of strength, and paleness of the countenance; and besides, enough is frequently left to pass into the bowels, and to prove purgative. Two grains dissolved in four ounces of water, and a table-spoonful of this solution given every ten minutes or quarter of an hour, till vomiting takes place, is a good way of administering tartar emetic. By giving the same solution in rather smaller doses, and at longer intervals, as of two or three hours, instead of vomiting, its effect is to produce a gentle perspiration, which is of the greatest benefit in many diseases, especially feverish diseases.

Antimonial wine. Tartar emetic is also given dissolved in wine; an ounce of the antimonial wine contains two grains of tartar emetic; but the wine is not so often given as the watery solution of tartar emetic, because in febrile complaints the wine would be improper.

Antimonial powder. Another antimonial much used with the view of promoting gentle perspiration in febrile complaints, is the antimonial powder, of which the dose is three or four grains every four hours. A preparation of a very similar kind to this, is the celebrated James's powder, which has maintained its reputation for nearly a hundred years. Antimony, conjoined with some narcotic medicine, is a better sudorific even than when employed alone; the dose for this purpose is thirty drops of laudanum, with forty

of antimonial wine, to be given in an ounce of water at bed-time. When an emetic is wanted for children, antimonials are seldom those we should employ.

Tartar emetic does not often lie on the stomach, but if in large doses it should do so, it acts as a virulent poison: its expulsion must be promoted by oil and warm water, or its effects counteracted by taking the decoction of yellow bark, which renders the tartar emetic inert. A cordial is sometimes required after the operation of tartar emetic, even in the small doses given in this country. When it has acted too violently, opium may be given to allay the nervous symptoms; and when the exhaustion from vomiting has been great, a little wine or other cordial may be necessary to relieve it. The continental physicians give tartar emetic, especially in inflammations of the chest, in doses which appear terrible to an American practitioner: this can be accounted for only by knowing that its activity is diminished or destroyed by substances given along with it, especially bitters and the bark. Twenty grains of tartar emetic, with an ounce of Peruvian bark in decoction, does not usually excite vomiting.

Tartar emetic ointment. Tartar emetic, when well mixed with lard, in the proportion of one or two drachms of the substance to an ounce of the lard, forms a very irritating ointment, which occasions a pustular eruption, something resembling the vesicles of cow-pox, which often proves very serviceable in deep-seated inflammation. The pustules are very painful, and should they become much irritated, a soft poultice of bread and milk will in general give relief. Frictions with this ointment at the pit of the stomach have been much recommended in hooping-cough.

ARABIC, GUM.

Gum arabic, or gum acacia, dissolved in water, is one of our best demulcents in cases of catarrh, consumption, diarrhœa and bowel complaints gene-

rally; in inflammation of the stomach, caculous affections, and in strangury. The mucilage of gum is prepared for use by dissolving the gum in warm water. In this form, it is an excellent medium in which to administer various medicines taken in a fluid form.

ARSENIC.

Arsenic is a metal famous for affording one of the most virulent, and, unhappily, too accessible poisons known. As it is a substance the fatal effects of which are too frequently observed, and as it is the instrument with which revenge or malignity often accomplishes its detestable purposes, we shall give a pretty full detail of what is known concerning this noted mineral.

Arsenic, in strict chemical language, is a metal of a blueish-white colour, not unlike that of steel, and has a good deal of brilliancy. It is the softest of all the metallic bodies, and so brittle that it may be reduced to a fine powder by pounding it in a mortar. It has no sensible smell when cold, but when heated, it sends forth a strong smell of garlic. Like other metals, it has no effect on the living body in its metallic state; but when combined with oxygen, its properties are very different indeed. When the metal is exposed to a moderate heat, in contact with air, it rises in the form of a white powder, and the garlic smell is perceived, not from the oxyde, but from the *metal*, in a state of vapour. This white powder is the oxyde of arsenic, and is what is generally known in commerce, and in common language, by the name of *arsenic*. It has a sharp acrid taste, which at last leaves an impression of sweetness, and is a very virulent poison.

Symptoms produced by swallowing arsenic. The symptoms produced on the living body by a small dose of arsenic, are some of the following: within about half an hour after taking the poison, there occur spasmodic pains of the stomach and bowels, with a sensation of heat in the mouth, and of tightness about the throat, a feeling of tenseness in the skin of the head, and

of the eye-lids, inflammation of the eyes, and itching of the face and neck. To these succeed incessant vomiting and purging, attended by excruciating pain of almost every part of the body, but especially of the stomach, bowels and head; the pulse, which at first was full, hard, and frequent, sinks, and becomes irregular; clamminess of the skin; cold sweats, purple spots upon the skin, and convulsions, precede death; or if the sufferer does not die, indigestion, hectic fever, palsy, and weakness of mind and body, distress him during the rest of his life. It is said, that in cases of poisoning by arsenic, the body runs suddenly into putrefaction.

Treatment of those who have swallowed arsenic. The great object is to procure its expulsion from the stomach as quickly and easily as possible. If a practitioner be called in before vomiting has come on, it may be proper to excite it by tickling the throat with a feather, or by giving a dose of white vitriol, sufficient to excite instant vomiting. The dose for this purpose is from twenty-five to thirty grains, or five grains of blue vitriol (the sulphate of copper) may be given; the advantages of these emetics are, that they act quickly, and require little dilution for their action, which is of great importance, as preventing the absorption of the arsenic; and as blood-letting favours this absorption, we must be cautious not to employ it while any portion of arsenic remains in the body. But, in general, the vomiting has begun before a practitioner is called. Lime-water then should be plentifully given. The bowels must be emptied by the mildest means, as by castor oil, alone, or with olive oil or in mutton broth. Opium, in the dose of one or two grains, or forty drops of laudanum, or five grains of camphor, or a glass-full of camphor julep, or half a tea-spoonful of ether, in water, may be given, to quiet the nervous irritability; and when the action of the heart is feeble, ammonia in pretty large doses has been found useful. But the probability is, that inflammatory action will take place in the

stomach and intestines; and, therefore, we must be very cautious in giving to the patient any stimulating substances. We must, on the contrary, when inflammatory symptoms appear, refrain from them entirely, and have recourse to bleeding, but with great caution, in consequence of the debility that is liable rapidly to ensue: we must give mild laxatives, employ a cooling regimen, and the usual remedies and observances against increased arterial action, as detailed in the article Antiphlogistic Regimen. The debility, the palsy, and impaired health, which subsequently remain, are to be treated with bark and other strengthening medicines, sea bathing, light nutritious diet, and country air, with moderate exercise.

Notwithstanding the destructive powers of arsenic, it has nevertheless been used as an article of the *Materia Medica*, and employed for the cure of intermittent fevers, periodical head-aches, and in several diseases of the skin. The safest form under which it can be employed in the cure of diseases, is the arsenical solution of Dr. Fowler, beginning with the dose of four drops, and increasing it gradually to thirty drops twice a day. The addition of a few drops of the wine of opium is said to render its operation safer and more efficacious. The precise manner in which arsenic acts, in the cure of diseases, is not agreed on by physicians. Whenever there is a tendency to inflammatory action, the use of arsenic should be avoided. Most of the plasters, salves, and powders, advertised by quacks for the cure of cancer, are mixtures of arsenic. Their use is always attended with great danger. Many cases of palsy, and even of death, have been recorded from the application of arsenical plasters and ointments for various purposes. Even where the skin is unbroken, poisonous effects may be produced by them.

ASSAFOETIDA.

Assafoetida is a gum resin obtained from a plant growing in Persia, the *ferrula assafoetida*, by cutting the top of

the root across: when the juice was exuded, it is scraped off, and a second cut is made across. This operation is repeated till the root is entirely exhausted of juice. Assafœtida has a strong disagreeable smell, somewhat like that of garlic, with a bitter acrid taste. It is one of the most common remedies for spasms, in hysterical complaints, and in irregularities of the monthly discharge; but it is too often had recourse to, in such cases, under circumstances which render it productive of far more injury than benefit to the patient. In asthma and other kinds of difficulty of breathing, in hysterical cases, attended with much flatulence and costiveness, assafœtida is usefully given: in this last case it may be given, joined with aloe, in the pills called the pills of aloe with assafœtida, of which two are to be taken every night, or every second night. In the fit of hysterics, a draught of the watery solution of assafœtida will sometimes put a stop to it immediately. When there is costiveness, with much distension of the bowels from wind, or colic pains, a drachm or two of assafœtida may be added to a clyster, consisting of about a pint of gruel or infusion of senna, with very good effect. In spasmodic cough, the administration of a mixture, composed of thirty grains of assafœtida, two ounces of the water of acetate of ammonia, and two ounces of peppermint, may be given in doses of one or two spoonfuls; and the same has also been found of service in the latter stages of whooping cough.

ASARABACCA.

The leaves of the *asarum Europæum*, or asarabacca, possess both emetic and purgative properties; but they are principally used as an errhine, in cases of obstinate head-ache, and other chronic affections of the head, to produce a copious secretion of mucus from the lining membrane of the nostrils. According to Dr. Cullen, the leaves of the asarabacca constitute the most useful errhine we possess. The dose is from

one to three grains of the powdered leaves, taken like snuff at bed-time.

AZEDARACH.

The bark of the root of the *melia azedarach*, or pride of China. This beautiful tree is a native of Japan, but has been naturalized in many parts of Europe, and in the southern portions of the United States. The fresh bark of the root is recommended as an active anthelmintic, in the form of a decoction, made from four ounces of the bark boiled in a quart of water, until the latter is reduced to one-half. The dose is from half an ounce to an ounce, every two or three hours. It is very apt, however, to produce violent vomiting and purging. The berries of the azedarach are said to possess equal efficacy, in cases of worms, with the root. They may be eaten without any particular regard to the dose.

AZOTE.

Azote is a gas which forms a large proportion of the atmosphere, 100 parts of which contain 79 of azote. It extinguishes flame, and is hostile to animal life; hence, the name given to it by the French chemists, which signifies destructive of life. Some later chemists call it *nitrogen*, from its being an ingredient in nitric acid. Though azote is principally described by negative properties, it is a gas of great importance. Mechanically mixed with oxygen in the air we breathe, it tempers the too great stimulus of the latter gas; combining with oxygen in a closer union, and in other proportions, it forms nitric acid, and other acids of remarkable properties; and united with inflammable air, (hydrogen,) it constitutes the volatile alkali. It is an abundant ingredient in the composition of the muscles, and some other parts of the animal body. Azote was discovered by Dr. Rutherford in the year 1772. It is not employed by itself, as a medicine.

BALSAMS.

This term is now generally restricted

to signify compounds of resin and benzoic acid ; but in the shops, and in common discourse, it is applied to some substances that are not strictly so compounded, which is the case with the article next mentioned, as it contains no benzoic acid, but consists of resin and essential oil.

Canadian balsam. This is a species of turpentine, procured from the *pinus balsamea* : as we have just remarked, it is improperly called a balsam, as it contains no benzoic acid. On account of its agreeable flavour, it is preferred for internal use to common turpentine. It acts, when taken internally, as a stimulant, diuretic, and cathartic ; and like the copaiba, is recommended in gleet, fluor albus, chronic inflammation of the bladder, chronic catarrh, and internal piles. It is best administered in the form of an emulsion, made with mucilage of gum arabic, or the white of an egg.

Balsam copaiba is obtained by wounding the bark of a tree, the *copaifera officinalis*, which grows in the Brazils, and in some of the West Indian islands. It has the consistency of oil, but it is more viscid and glutinous ; it has a pale yellow colour, an aromatic odour, and a pungent nauseous taste. Copaiba has been much used in the cure of gleets, of the whites, and of similar discharges, where there is not much active inflammation ; and it is an excellent remedy in many cases of chronic catarrh. Of late, it has been thought of service to those who are troubled with piles. It may be given in doses of fifteen to forty drops, twice or thrice a day, in water, or rubbed into an emulsion with gum arabic, or the yolk of an egg. When given for the cure of piles, it is in doses of a drachm three times a day, and in this dose it commonly purges. A little aromatic water, or a drop or two of some volatile oil, as cinnamon or peppermint, may be taken with each dose, to prevent the sickness which copaiba occasions in some people.

Balsam of Peru. This is obtained by boiling in water the twigs of a tree

which grows in South America, the *myroxylon peruiferum*. It is of a brown colour, a fragrant aromatic smell, and a pungent bitterish flavour. This balsam has been recommended in doses of from half a drachm to a drachm, as a stimulant in chronic rheumatism. It may be given diffused in water by means of mucilage, or made into pills with some vegetable powder. It is said also to be a useful expectorant in chronic asthmas, and old dry coughs ; but it should not be employed where there is any inflammatory action.

Balsam of Tolu. This balsam is also obtained from South America, from the *toluifera balsamum*. It has an agreeable smell and taste, and is supposed to be expectorant ; but it is now principally used to give a pleasant flavour to syrups, lozenges, and mixtures for coughs. The balsam of tolu is one of the ingredients in the vulnerary balsams, intended to imitate what was once so famous under the title of Friar's balsam, Jesuit's drops, &c. But it is not easy to say, what advantage can be got from the application of such compounds to a recent cut, for which the vulgar commonly recommend them.

BARK.

When used without any addition, bark signifies the celebrated medicine obtained from South America, and known by the name of Peruvian bark, or Jesuit's bark. It is the bark of certain trees, called by botanists, *cinchona* ; and of its numerous species, there are three or more particularly used in medicine. Its medicinal virtues are said to have been discovered by the following circumstance : some cinchona trees being blown into a pool of water, remained there long enough to make the water so bitter, that the neighbouring inhabitants desisted from using it. One of them, in a paroxysm of fever, happened to drink of it, and obtained a speedy cure. Others who were ill, made use of the same remedy, and found it equally successful. A remarkable cure having been performed by the bark, in 1638, on the countess of

Cinchon, wife of the Spanish viceroy at Lima, it came into general notice, and from this lady the plant derived its present generic name. The species now called *laucifolia*, is that which furnishes the pale, or common Peruvian bark of the shops. It is imported chiefly in rolled up pieces or quills, mixed with larger and flatter pieces. The small and fine quilled pieces are considered the best. This bark is covered with a gray outer skin; internally it is of a deep cinnamon colour. Its smell, when fresh, is peculiar, and slightly aromatic; its taste is harsh and bitter. This is the species which has always been most esteemed in the cure of agues, and in the treatment of diseases attended with debility; and it is deservedly reckoned superior to all other tonics and bitters.

In the cure of ague, the Peruvian bark is a medicine of great value. It should be taken in substance, and in sufficiently large doses, in the intervals of the fits, when a perfect intermission has been obtained, and there are no inflammatory symptoms present: when given during the paroxysms, it is apt to disagree with the stomach, while it is unquestionably productive of injury often of a very serious character. A large tea-spoonful of the powdered bark should be taken every two hours; it may be mixed with water, or with milk; and this is to be persisted in, till the fits postpone the period of their attack, or cease to return altogether. By some stomachs it is apt to be rejected, and various contrivances have been fallen upon to obtain its virtues in a concentrated form, that would not disagree with the stomach; the *tincture* has been tried, but it is quite insufficient for the cure of intermittent fever, and is an improper form in which to administer the medicine, on many accounts. With more confidence, the *extract* has been employed. This is prepared by boiling the powder, and evaporating to a proper consistence; it is believed that a great proportion of the active ingredients of the bark is obtained in this form, but in all probability

there must be much loss of them in the preparation; the extract may be given in the form of pills, or of bolus, in the dose of from ten to twenty grains. The *decoction* of bark is made by boiling an ounce of the powder of bark for ten minutes in a pint and a half of water, and straining the liquor; the dose of the decoction is one or two ounces, repeated according to the effect intended; if for the cure of agues, in the same frequency as the powder; if for debility, it need not be so often used. The *infusion* of bark generally sits well even on stomachs that will not bear the bark in substance. It is made by pouring a pound of water upon an ounce of bark in powder, and allowing it to stand for twenty-four hours. The dose is the same as of the decoction, from one to three or four ounces. The dexterity of modern chemistry has succeeded in obtaining the virtues of the bark in a very concentrated form. In the pale bark, there is found a substance called *cinchouin*, or *cinchonin*, and in the yellow bark, a substance called *quinine*, or *quinia*, which bear nearly the same relations to each other, as the alkalies potash and soda; and like them, are capable of combining with acids. Quinia, united with the sulphuric acid, forms the sulphate of quinine, of which eight grains are considered equivalent to an ounce of bark. A wine of quinia may be formed, by adding five grains of the sulphate to a pint of sherry; and a tincture, by dissolving the same quantity in eight fluid ounces of rectified spirit. We have thus a very easy and manageable way of exhibiting the bark; and it seems to have been ascertained by experiment, that these concentrated preparations are not, like those of some other vegetable substances, possessed of deleterious properties, but may be safely used in the cure of diseases; and we are thus enabled to employ the bark in the complaints of children, where formerly it was so difficult to get them to take it in sufficient quantity. Besides intermittent fever, bark has been used in a great variety of ailments; and a striking

instance of its remarkable efficacy is seen in the treatment of gangrene. In gangrene, we can hardly be too desirous to get the bark thrown into the system in large quantities; and unexpected benefits sometimes result from it when used to this extent. In gangrene, accompanied with debility, and in low states of fever, port wine may be taken at the same time with the bark. In the high excitement which sometimes co-exists with gangrene, and in typhoid diseases, while the skin is hot and dry, and decidedly inflammatory symptoms are present, it is dangerous to use the bark, and more especially to conjoin it with wine. In all cases, where we intend to continue the bark for some time, it is wise to begin with clearing out the stomach and bowels by an emetic and purgative; and then to take care that it does not disorder the stomach, or pass off by stool, as it is in some constitutions extremely liable to do. Where the bark proves purgative, a small dose of laudanum, as ten drops, or one-fourth, or half a grain of solid opium may be given with each dose.

The other diseases in which bark is usefully employed are very numerous; chiefly those accompanied by great debility. In confluent small-pox, when there are both typhoid symptoms, and a gangrenous tendency, the bark has been extensively used; but as these cases most frequently occur in children, it was very difficult, before the discovery of quinine, from the disagreeable taste of the bark, to get them to swallow a sufficient quantity. Bark in substance is best given to children in some sweet liquid, or in the form of glysters; but the latter are of much inferior efficacy to the bark administered by the mouth. Quinine, however, will render those expedients unnecessary. In consumption, bark has been given; but its tendency to disagree with the stomach, and to increase inflammatory symptoms, requires much caution in its exhibition in this disease. It is generally prudent to discontinue the use of bark in all cases when much cough is present. It has been given in rheuma-

tism, but it is all-important to premise bleeding, and other means for reducing inflammatory action, before the bark is prescribed.

In all diseases that appear to come on periodically, and to exhibit some of the peculiar phenomena noted in intermittents, the bark is sometimes useful; of this nature are certain head-aches, pains of the limbs, spasms, and coughs; its use in such cases, however, requires a good deal of discretion. If they depend, as is very often the case, upon chronic inflammation, the bark will most generally prove injurious. In gangrenous sore throats, the bark should be given internally; and a gargle made of the decoction is also to be used. In what are termed passive hæmorrhages, that is, discharges of blood occurring in feeble and broken-down constitutions, and in dropsy, when seeming to arise from general debility, without any local disease, the use of the bark is usefully alternated with diuretics, and the other means employed for the evacuation of the water. Some form of the bark is useful in many cases of stomach complaints, either alone or combined with sulphuric acid, or iron.

Sulphate of Quinine, or of Quinia. Quinia is a vegetable alkaloid body, discovered by modern chemistry in the yellow Peruvian bark, (*cinchona cordifolia*.) It is a white powdery substance, sparingly soluble in water, but dissolved by warm alcohol, from which it is not deposited in crystals. Quinia unites with acids, and forms salts, the most important of which is the sulphate. This is soluble in water, and crystallizes. It is now much employed in medicine, being found to answer all the purposes of bark; and as but a small dose is necessary, it does not produce the unpleasant effects of the bark in powder, or infusion. Eight grains are considered equal to an ounce of the powdered bark. The ordinary dose of the sulphate of quinia is from one to two or three grains, repeated every two or three hours, according to the circumstances of the case in which it is employed.

Quinia mixture. This is made from twelve grains of the sulphate of quinia, one drachm of elixir of vitriol, and four ounces of cinnamon water. The dose is a tea-spoonful or more, three or four times a day, or oftener.

Syrup of quinia. Take twelve grains of sulphate of quinia, four ounces of simple syrup, and one ounce of ginger syrup. The dose is the same as of the mixture.

Extract of quinia, or more properly, extract of bark, possesses all the properties of the Peruvian bark, and may be given in a pill of one, two, or more grains as a dose.

BARYTES.

Barytes is the name of an earth, remarkable for its great specific gravity, and for furnishing an ingredient in some salts, which have been recommended in the treatment of scrofula. Of these, the principal is the muriate of barytes, the dose of which is from five to fifteen drops of the saturated solution in distilled water, taken twice or thrice a day. As all the preparations of barytes are acrid and poisonous, their exhibition must be conducted with due caution.

BASILICON.

Basilicon is a stimulating salve, made by melting together five parts of yellow resin, eight parts of lard, and two of yellow wax. It is employed as a dressing to indolent ulcers and to burns; and to keep up the discharge from blistered surfaces, when this is considered desirable.

BELLADONNA.

The belladonna is a perennial plant, with a herbaceous stem; growing in mountainous and woody situations, and often cultivated in gardens. The whole plant is poisonous; and the berries, which are very beautiful, and of a fine red colour, sometimes tempt children to eat them; in consequence of which, they are seized with very dreadful symptoms, as a trembling of the tongue, dryness of the mouth, distressing thirst,

difficulty of swallowing, fruitless efforts to vomit, and great anxiety. Delirium and convulsions come on: the pupil is dilated, and the eye is insensible to light. The face becomes swollen and of a dark red colour. Inflammation attacks the stomach and intestines; and the former becomes insensible to stimulants, so that it is in vain to give emetics to evacuate the poison, which is, therefore, very commonly fatal. Sulphate of zinc, to the extent of thirty grains, should be tried, or sulphate of copper, six grains; and it is said that vinegar and other vegetable acids, honey, milk, and oil, are useful auxilia-ries in the cure. In some children who recovered from the effects of belladonna by this treatment, the delirium was succeeded by deep sleep, and starting of the tendons; the face and hands became pale and cold, and the pulse was small, hard, and quick. Blindness continued a considerable time, but at last went off. The part of the plant used in medicine is the leaf, which has a nauseous bitterish taste, and is given at first in the dose of a grain a day in powder, the quantity being gradually increased. Besides its narcotic power, it is thought to possess considerable influence on the excretions of sweat, urine, and saliva; but as an over-dose of it is so dangerous, and as we have other safer medicines which produce similar effects, it seems very doubtful whether its internal use should be recommended. The extract of belladonna is much more manageable as a medicine than the powdered leaves, and is often used in small doses, with decided advantage, in whooping-cough, and various chronic diseases of the chest. It has also been found of advantage in many of the indolent affections of the skin. The dose of the extract is one grain, for an adult, every three hours. Even in this small dose, it will often cause pain of the head, and vertigo—dimness of vision, and a bright scarlet eruption of the surface of the body. When such symptoms occur, its use should be at once discontinued. A plaster, composed of equal parts of ex-

tract of belladonna and common plaster, is often of effectual relief in the case of local pains arising from chronic rheumatism; and the powdered leaves, sprinkled upon unhealthy sores, or an infusion of them employed as a fomentation, are useful in allaying the pain by which they are attended.

Half a drachm of the dried leaves, infused in half a pint of water, furnishes a liquor, which, when dropped into the eye, causes the pupil to dilate for a considerable time; and those who operate upon the eye, take advantage of this circumstance to facilitate their operations. Persons who are afflicted with a beginning cataract may, by having the pupil dilated by this infusion, have their sight improved for a time, as the dilated pupil will allow some of the rays of light to fall on the retina.

RENNE LEAVES.

The leaves of the *Sesamum orientale*. When fresh, they are infused in water, which they render mucilaginous. This constitutes an excellent demulcent drink in fevers, diseases of the stomach, and bowel complaints.

BISMUTH.

Bismuth is a bright metal, of a leafy texture, and having a reddish yellow tint. Its oxyde or subnitrate is employed as a remedy in painful affections of the stomach, as water-brash, for the cure of dyspepsia, and to allay inordinate vomiting. It is generally ranked among the tonics; its use is not, however, always free from danger.

BITTER-SWEET.

The *Dulcamara*, or bitter-sweet, is a shrub, the twigs of which were formerly used in medicine, and much esteemed for their power in the cure of cutaneous diseases, such as are commonly, though improperly, termed scurvy-spots; of rheumatic affections, scrofula, and ill-conditioned ulcers. Bitter-sweet has principally been used in decoction as a diet drink, in the dose of two or three ounces, three times a day, gradually augmenting the quan-

tity, till a pint be taken daily. The strength of the decoction is an ounce of the twigs to a quart of boiling water. A stronger decoction may be used externally as a lotion in the above-mentioned complaints. The bitter-sweet has of late years been unjustly overlooked in the treatment of the above cases; very decided benefit will often be found to result from its judicious employment.

BLACKBERRY-ROOT.

The root of the *rubus villosus*, or blackberry, especially the bark, in the form of an infusion, affords a useful astringent in cases of chronic dysentery and diarrhoea, and in the latter stages of cholera infantum.

BLISTERING PLASTER.

A very excellent blister may be obtained by spreading on a piece of leather a layer of basilicon ointment, and then sprinkling the surface thickly with powdered cantharides; but the most common blistering plaster is made of equal parts of bees-wax, rosin, and olive-oil, melted together, into which is to be well stirred a quantity of powdered cantharides, equal to two-thirds by weight of the other ingredients.

BLOOD-ROOT.

The root of the *sanguinaria canadensis*, a plant which grows abundantly in every part of the United States. The root is red and tuberous, and of an acrid taste, which remains upon the fauces, some time after it has been chewed. According to the dose and form in which it is administered, the blood-root acts as a tonic, narcotic, stimulant and emetic. In large doses, as of 8 to 20 grains, it excites nausea, heat of the stomach, vertigo or faintness, indistinct vision, and finally puking. In smaller doses, its effects upon the circulation resemble those of digitalis. Given in doses insufficient to produce nausea, it acts as a stimulant and tonic. Applied in the form of powder to fungous granulations, it acts as an escharotic. The diseases in which

it has been recommended, are long continued affections of the chest, untended with fever; those of the liver; chronic catarrh, hooping-cough, and croup; rheumatism, and hydrothorax. It is a remedy, however, which can not fail to do harm, excepting in the hands of a skilful physician.

BONESET.

The *eupatorium perfoliatum*, or boneset, is a plant indigenous to the United States. Every part of it is intensely bitter, but without either astringency or acrimony. Its active properties are soluble in water. Taken internally, it acts as an emetic and purgative, a diaphoretic and mild tonic, according to the dose. In slight cases of catarrh, a weak infusion may be drunk warm on going to bed, with a very good effect. In rheumatism, a weak infusion acts as a valuable auxiliary to the other diaphoretic remedies employed.

BORAX.

Borax is a salt composed of boracic acid, soda, and water of crystallization. It is found in Thibet in an impure state, and is purified by gentle calcination, solution, and crystallization. Its principal use in medicine is in the formation of gargles, and to mix with honey to be applied to the sore mouths of children; equal parts of borax and clarified honey, with the addition of a little tincture of myrrh, is a good application for the aphthæ or thrush; but a much better is made by rubbing together in a mortar equal parts of borax and loaf-sugar, and dusting this powder, in a dry state, over the internal parts of the mouth. A good gargle for the mouth and throat, when under profuse salivation, is made by taking two drachms of borax, dissolving it in eight ounces of rose-water, and adding a little honey and tincture of myrrh. Modern chemistry has derived some curious facts from the decomposition of the boracic acid. A particular substance of an inflammable nature, called

boron, has been extracted from it. Boron is a brown insoluble powder, and burns with much brilliancy when heated to 600°.

BROWN MIXTURE.

The brown mixture is an expectorant compound, made by dissolving two drachms of extract of liquorice and gum arabic in boiling water, and when cold, adding sweet spirits of nitre, and antimonial wine, of each two drachms, and tincture of opium forty to sixty drops. The dose is a table-spoonful occasionally. It is a useful prescription in catarrhal affections attended with a harassing cough, after the active symptoms have been removed by bleeding.

BUCKBEAN.

The root of the *menyanthus trifoliata*, or buckbean, is employed as a tonic, cathartic and alterative in various diseases.

BUCKTHORN.

The buckthorn is a tree or bush which grows in hedges; flowering in May and June, and ripening its fruit in September or the beginning of October. The berries have a nauseous bitter taste, and were long in considerable esteem for their purgative effects, and were celebrated in dropsy, in rheumatism, and the gout. They produce griping and sickness, with dryness of the mouth and throat, and long continued thirst. A syrup made by adding two parts of the clarified juice of the berries, to one of white sugar, is frequently prescribed to children in the dose of one or two tea-spoonfuls; but buckthorn may easily be dispensed with in any shape; and children will take aloes suspended in treacle, and retain it on their stomachs as easily as syrup of buckthorn.

BUGLEWEED.

The *lycopus virginicus*, or bugleweed, is a plant which grows spontaneously about creeks and low lands. It

has been recommended in the treatment of hæmoptysis, coughs, and other diseases of the lungs.

BURDOCK.

The root of the *arctium lappa*, or burdock, is mucilaginous, without smell, and of a sweetish slightly bitter taste. A decoction of burdock made by boiling one ounce in a pint of water, has been recommended as a gentle laxative, diuretic and sudorific in cases of gout, syphilis, scurvy, and calculous complaints.

BURGUNDY PITCH.

The burgundy pitch is a resinous matter obtained from various kinds of fir-trees. In the form of a plaster, it is a very usual application to the chest, stomach, back, and limbs, in chronic affections of those parts. Its good effects are to be ascribed to its keeping up a degree of warmth on the surface, and thus acting the part of a mild rubefacient, without exciting redness of the skin, or producing vesication, as in the case of sinapisms and blisters.

BUTTERFLY WEED.

The *asclepias tuberosa*, or butterfly weed, is a plant indigenous to the United States, better known by the popular appellation of pleurisy root. The root has a slightly bitter taste, without any indication of astringency, and yields its active properties to boiling water. It acts, when taken into the stomach, as a diaphoretic and expectorant. It also exhibits a slightly tonic action, and in large doses is gently laxative. In pleurisy, catarrh, and other diseases of the chest, it is greatly extolled. It has also been employed in bowel affections. About a gill of a strong decoction of the root may be taken as a dose.

BUTTER-NUT.

An extract made from the inner bark of the root of the *juglans cinerea*, or butter-nut, either alone or in combination with calomel, jalap, soap or other purgatives, constitutes an excellent cathartic in all cases in which evacuation

of the bowels is required. The dose of the extract is from fifteen to thirty grains.

CAJEPUT OIL.

The cajeput is a volatile oil of a greenish colour, with a smell resembling camphor and turpentine, said to be obtained from the *melaleuca leucodendron*. It is a powerful medicine, and much esteemed in India in painful chronic diseases. Taken into the stomach in doses of five or six drops, it is heating and stimulating, and also diaphoretic. It is thought useful in various convulsive and spasmodic complaints. It has also been used both internally and externally in palsies, chronic rheumatism, gout, tooth-aches, deafness, and in hysterical and hypochondriacal affections. It is said to be destructive to the insects which infest the collections of natural historians.

CALAMINE.

Calamine is an ore of the carbonate of zinc, and an article of the materia medica. It is roasted and calcined, to free it from any arsenical or sulphurous particles it may contain; and, when properly prepared, it is used in certain eye ointments; and is dusted on moist ulcers, to prevent the spreading of the acrid matter. It is also the basis of the useful cerate, commonly known by the name of Turner's cerate.

CALOMEL.

Calomel is a preparation of mercury; and one of the very best products of that remarkable and useful mineral. It is a compound of the black oxide of mercury with muriatic acid, the acid being in less quantity than is sufficient to neutralize the base; or according to the more modern view, it is a chloride of mercury.

Calomel is one of the most useful mercurial preparations we have. It is principally used as a purgative; and there are few purgatives more convenient. It may be administered to patients of every age, and in a great variety of complaints. It is a medicine

which, on account of its efficient action in a very small bulk, and its having no nauseous taste, is excellently adapted for children. To infants from a few weeks to a year old, it may be given in doses of from half a grain to two grains, according to their age. Though it is thus so safe and manageable a purge, it is to be observed, that it is not to be rashly given nor obstinately persisted in; we must never forget that it is a preparation of mercury; and as this active mineral, in any of its various forms, if not carefully administered, may prove a poison instead of a remedy, calomel ought to be alternated with some purgative of quite a different character; and given only occasionally, and at intervals. As calomel is apt to exert its peculiar action on the mouth, we must be careful not to order it in cases of thrush and ulceration of the mouth, to which children are subject, nor in any case to continue its employment for too long a period. In disorders of the digestive organs in children, accompanied with wasting, pale colour of the skin, irregular or disordered bowels, unhealthy stools, picking of the nose, and the symptoms commonly supposed to indicate worms, very small doses of calomel combined with magnesia, or prepared chalk and ipecacuanha, will often produce very beneficial effects when aided by a proper diet and the warm bath. When the child is really troubled with worms, especially the long round worm, or the small white ones, three grains of calomel, with six or eight of jalap, form a good vermifuge. In croup, it was at one time thought to be a very efficient practice, to give calomel to the amount of five grains every hour, even till a hundred grains were taken in a day; but this practice does not seem to have kept its ground. Croup requires very active treatment for its inflammatory and spasmodic symptoms, and there is no time to wait for the mercurial action of calomel; nor does there seem any specific power in calomel against croup. In inflammation of the bowels, it has been recommended to give doses of

calomel so large as twenty or thirty grains; but there seems no peculiar advantage in this plan; indeed many practitioners have doubts whether any effect whatever results from such doses. When we wish the purgative effects of calomel in an adult, the best way is to combine it with jalap, rhubarb, scammony, or the extract of colocynth: five grains of calomel to fifteen of jalap or rhubarb; or to eight of scammony or aloes (increasing the quantity of both ingredients if necessary) form a very valuable purge. Calomel is frequently employed with the intention of introducing mercury into the system; and for this purpose, the dose is one grain, or two, taken night and morning; and it is administered very conveniently in the form of a pill. To prevent its passing off by the bowels, as even in this small dose it is in some cases apt to do, it is proper to conjoin a small quantity of opium with each pill, as half a grain; taking care to obviate costiveness by the occasional use of suitable purgatives. It would be difficult to enumerate the great variety of diseases in which calomel is used; they may in part be understood, from the general purposes which we have mentioned it as fulfilling, viz. to produce a purgative and an alterative effect; but it appears possible to cause it also to act on the kidneys, by combining it with diuretics; hence, it is used in combination with squill, in some species of dropsy.

CAMPHOR.

Camphor is a substance obtained by distillation from a species of laurel which grows in great abundance, and to a considerable size, in the forests of Japan; the *laurus camphora*. All the parts of the tree smell strongly of camphor; and to procure that substance, they are cut into small pieces and put into a still with a quantity of water.—After the water has been kept boiling for forty-eight hours, the camphor is found adhering to the straw with which the head of the still is lined. In this state it is gray, and mixed with

straw and other impurities. It is purified by a second sublimation in glass vessels. Pure camphor is lighter than water, white, unctuous to the feel, tough, and with difficulty reduced to powder. It has a bitter, aromatic, pungent taste, accompanied with a sense of coolness; its smell is strong, but agreeable; it is very volatile and inflammable. It is soluble in alcohol and ether. It is found in so many different plants, that it is considered as one of the peculiar principles of vegetables.

Camphor is a substance of considerable activity when taken into the stomach. It increases the action of the heart and the heat of the body; and tends to promote perspiration; in small doses, it does not, however, produce much effect on the pulse; in large doses, it softens it, and renders it fuller. There has been considerable diversity of opinion as to the effects of camphor; and this may be accounted for by reflecting, that some assertions refer to its effects in small doses, soon after its exhibition; while others refer to its subsequent effects, when given in large doses. At first it stimulates, but afterwards there is depression. It has been used in various diseases of languor and oppression, as in fevers of a typhoid kind; in rheumatic fevers with much debility, in eruptive diseases, as small-pox and measles, when the rash has disappeared too suddenly. It has been used as an antispasmodic in convulsions, hysterics, and hiccup. Camphor is useful in peritonitis, (inflammation of the membrane investing the bowels,) whether it occurs in men, or in women in the child-bed state; the antiphlogistic practice, of course, being employed at the commencement of the disease. Persons who can not procure sleep except from large doses of opium, will sometimes succeed by combining smaller doses with camphor. Camphor may be usefully added to various other medicines; to bark, in typhoid diseases; to valerian, musk, assafoetida, &c. in spasmodic complaints; and to antimonials, and other diaphoretics. With regard to its dose,

and the best way of exhibiting it, as a few drops of alcohol enable us to reduce it to powder, it may be given in the form of pills; from two to five grains of camphor being administered every four hours, till its effect is produced, viz: that of allaying irritation, rendering the pulse fuller and softer, and occasioning a gentle perspiration. In large doses, as of twenty to thirty grains, it is apt to produce vomiting, giddiness, and other unpleasant effects. Camphor may be administered in the form of emulsion, made by rubbing camphor, sweet almonds, and sugar with water, till the camphor is suspended equally through the mixture. A scruple of camphor, with two drachms of sweet almonds, one drachm of sugar, and six ounces of peppermint-water, forms an emulsion, of which one or two table-spoonfuls are to be taken every two or three hours. It may be given in powder mixed with sugar or magnesia; or the tincture may be used; of this half a drachm with an equal quantity of compound spirit of lavender, and added to an ounce of mucilage, is a proper quantity for a draught. Oil dissolves camphor, and thus furnishes the means of applying it externally, in cases of rheumatic pains, of indolent swellings, &c. Camphor is sometimes added to mercurial ointment, to increase its stimulant and deobstruent effects.

CANTHARIDES.

Cantharides are an insect of the beetle kind, of a shining gold and greenish colour, and a strong and sickly smell. When tasted, they make no impression on the tongue at first, but very soon a degree of acrimony and a flavour of pitch are perceived. The largest and the best are brought from Italy. They should be chosen of a fresh colour, entire, and free from dust. The principal use of these insects is to form blistering plaster, which they do with great efficacy and success. Cantharides are also used internally, and exert a very powerful action on the urinary organs. Hence they have been

used for the cure of incontinence of urine, or to remedy its suppression; they have also been used in gleet, and for the cure of the whites; but their internal use requires great caution, and most of the maladies for which they are used may be alleviated by safer means. The dose to begin with, is half a grain of the powder, or from fifteen to thirty drops of the tincture. This may be continued for a day or two; but it is apt to cause severe effects on the urinary organs, and must be withdrawn as soon as the patient complains of pain in making water. The acrimony of the cantharides, when absorbed into the system from a blister, is to be obviated by drinking largely of diluents, as gruel, barley water, and the like. It is said, that boiling cantharides in water deprives them of the power of acting on the kidneys, without in the least diminishing their blistering properties. The symptoms of an over-dose of cantharides are violent retching; with copious stools, frequently bloody; severe colics, and inflammation of the stomach and intestines; sometimes convulsions, with a horror of liquids, as in hydrophobia; and delirium. Besides these, there are the peculiar effects on the urinary and genital organs, as heat in the bladder, frequent discharges of bloody urine, strangury, &c. The treatment to relieve these symptoms must be by copious bleedings, the warm bath, fomentations, mucilaginous drinks, and opium in the form of a clyster.

CARBON.

Carbon is a simple inflammable substance, deriving its name from the Latin word *carbo*, a coal; carbon being commonly obtained by burning wood until it puts on the appearance of coal. Carbon is a substance of great importance in chemistry. It is one of those substances that have never been decomposed, and which are therefore, in the present state of chemical science, considered as simple. Carbon is black, insipid, and free from smell; it is brittle, and easily reduced to powder, and

is insoluble in water. Charcoal retards the putrefaction of animal substances; hence it is used externally in gangrene; given internally, it sometimes acts as a gentle purge. The experiments of modern chemistry have ascertained that the most valuable of precious stones, viz. the diamond, is pure carbon, differing from charcoal merely in the state of aggregation of its particles. Precisely the same product is obtained both from the diamond and from charcoal, when they are burned in oxygen gas; and this product is carbonic acid. Carbon enters largely into the composition of the animal and vegetable kingdoms, and by itself or its products is very widely diffused through nature. In its simple state, it is but little employed in medicine.

Charcoal poultice. A poultice made from half a pound of oatmeal thickened with water, with the addition of two ounces of finely powdered charcoal, is employed in cases of mortification, to destroy the fetor arising from the dead portions of flesh and offensive discharges.

CARROT SEED.

The seed of the *daucus silvestris*, or wild carrot, has been recommended as a diuretic in dropsies, and in calculous diseases and affections of the kidneys. It is administered in strong infusion.

Carrot poultice. A poultice made from the root of the common garden carrot, grated and stewed with a small addition of water and lard, forms an excellent dressing for ill-conditioned, indolent, and fetid ulcers.

CASCARILLA.

Cascarilla is the name of a plant, growing in the Bahama islands and in Jamaica. The bark, which is the part used in medicine, is imported either in curled pieces, or rolled up into short quills. This bark has an agreeable smell, with a bitterish taste, accompanied with a good deal of aromatic pungency. When taken internally, it produces a sense of heat, and excites the action of the stomach. It was formerly

used in intermittent fever, but the Peruvian bark is so much more effectual, that it is now but little resorted to. Cascarella is best taken in substance, in the dose of from twenty to thirty grains of the powder of the bark.

CASTOR.

Castor is a substance found in oval pouches situated near the anus of the beaver. In both sexes, near the anus, there are four tough membranous follicles, the two largest and undermost of which are connected, and lie close to each other, and contain an oily fluid secretion, which is the substance known by the name of castor. The best kind of castor comes from Prussia, Russia, and Poland, but this is now rarely to be met with; an inferior kind is got from Canada, in pods which are usually flatter, smaller, and moister than the European; and whose contents are of a very miscellaneous nature. This species of castor is commonly of a yellow colour, of a resinous appearance, with a faint, nauseous smell. Castor has been much extolled as an antispasmodic, especially in uterine complaints; but it is not likely to be much employed now, both on account of its high price and uncertain quality, and because, even in its genuine state, much good is not to be expected from it. It may be given in powder, from ten to twenty grains, or in clysters to the extent of a drachm. It is also used in tincture, from a drachm to two drachms.

CASTOR OIL.

The castor oil has no relation whatever with the preceding article, but is the expressed oil of the seeds of the *ricinus communis* or *palma christi*, a plant which grows in the East and West Indies, in Africa and the south of Europe, and in most parts of the United States. This oil, from its supposed efficacy in curing and assuaging the unnatural heat of the body, and in soothing the passions, was called by the French *Agnus Castus*; whence the inhabitants of St. Kitt's, in the West

Indies, who were formerly blended with the French in that island, called it castor oil. The capsules of the seed contain, under a thin, gray husk, a white oily kernel. The skin of the seeds is very acrid and purgative; and one or two of the latter, swallowed whole, act violently as a purgative or emetic. The kernels, when strongly pressed, yield almost a fourth part of their weight of a pale fixed oil, of a slightly nauseous smell and taste. The seeds should always be bruised without any assistance from heat; the oil obtained in this manner is called *cold-drawn*, and is always to be preferred. In the West Indies, the oil is sometimes separated by boiling the seeds in water, the outer covering being first taken off them; but oil procured in this way is deeper-coloured, more acrid, and more liable to become rancid. Castor oil is one of the most valuable laxatives we possess; it, in general, thoroughly evacuates the bowels with little irritation; and hence is peculiarly useful when we wish the system to be little excited, as in cases of inflammation, and those of a spasmodic tendency. It is exceedingly useful during pregnancy and the child-bed state. It must be recollected, however, that castor oil is very apt to leave the bowels in an inactive state, and hence it is not a very appropriate purgative for persons affected with habitual costiveness. Castor oil may be safely given to very young children; a small tea-spoonful may be given to children even of a few days old; and the dose is to be increased according to the age of the patient, till, for an adult, we come to an ounce. The principal matter requiring attention is the way of exhibiting it. To many stomachs it is peculiarly disagreeable. To infants, it is best given alone; and by applying them to the breast immediately afterwards, they are scarcely sensible of the taste. Castor oil may be given swimming on water; a few drops of oil of peppermint may be added; and in cases where inflammatory symptoms do not forbid it, a little aromatic tinc

ture. Castor oil may also be given in the form of emulsion, rubbed together with mucilage or the yolk of an egg, and having a little peppermint-water added. To make a uniform mixture, the oil should be first rubbed with the yolk of an egg, and the peppermint-water gradually added. A way of giving castor oil that we have found very convenient, is the following:—Take a little chicken-broth, and skimming off all the fat, add to it, when very hot, the dose of castor oil by minute portions, each portion being well diffused through the fluid before another is added; and when salt is put in, most stomachs will bear the mixture as easily as any article of food. With persons to whom the use of castor oil is peculiarly nauseous, we must be cautious of exhibiting it, in cases where the strong action of vomiting would be dangerous, as in ruptures, and in diseases where there is a tendency of blood to the head.

CATECHU.

The catechu is an astringent substance obtained from the *acacia catechu*, and imported to us from Bengal and Bombay. It formerly used to be absurdly called terra japonica, japan earth. There are two kinds, whose composition differs a little, but not so as to make any material alteration in their medicinal virtues. The extract is principally prepared from the internal part of the wood, by decoction, evaporation, and drying in the sun. It is a good astringent in the latter stages of most bowel complaints; but we must be very sure of the propriety of its use before we give it in those complaints, as no treatment can be more pernicious in the commencement of many cases of dysentery and diarrhœa, than the administering of medicines to check suddenly the discharge. In relaxation of the uvula, it is often effectual, either chewed, or the infusion of it used as a gargle; and it is said that public speakers and singers often resort to lozenges containing it, as an effectual preventive of hoarseness. In ulcera-

tions of the mouth and gums, it is highly useful. The following are some of the forms in which it may be used. In diarrhœa, a powder may be taken, composed of fifteen grains of powdered extract of catechu, and twenty grains of compound powder of chalk, with opium. This is to be repeated three or four times a day. There will be about half a grain of opium in each powder. Or an infusion of catechu may be made by taking three drachms, and infusing these in half a pound of water, and sweetening the strained liquor with honey or syrup. A table-spoonful of this is to be taken four or five times a day. Or we may add half an ounce of the tincture of catechu, to five ounces of the chalk mixture, and give it in the same doses.

CAYENNE PEPPER.

The cayenne pepper is an agreeable heating spice, procured from the pods of the capsicum, or cockspur pepper, the *capsicum annuum*, an annual plant, a native of South America, but cultivated in large quantities in the West India islands. Cayenne pepper is the mixture of the powder of the dried pods of many species of capsicum, and it is said to be frequently adulterated with coloured saw-dust, and even red lead; and a large proportion of common salt is often added to it. Cayenne pepper is chiefly used as a seasoning with food. It prevents flatulence from vegetable food, and when used in moderation, has a warm and good effect on the stomach. Cayenne pepper furnishes a valuable gargle in certain cases of ulcerated sore throat. Twenty grains are to be infused in a pint of water, the infusion is to be strained, and an ounce of the tincture of myrrh is to be added; the gargle to be used frequently. Poultices of capsicum have been applied externally, in the drowsiness and delirium common in the fevers of tropical climates. In ophthalmia from relaxation, the diluted infusion, as a wash to the eye, is a good remedy. The tincture of capsicum may be used in all those cases in which

the remedy is judged proper; the dose is from ten to thirty drops; and two drachms of it, added to six ounces of infusion of roses, or of barley-water, may be used as a gargle, diluting it if necessary.

CHALK.

Chalk is an abundant production of nature: it is composed of a combination of the carbonic acid with lime. Chalk is the principal component of oyster-shells, and enters into the composition of other animal substances.

Chalk is used in medicine to correct acidity in the stomach. For this purpose, it is prepared by careful pounding and washing. It may be taken in the dose of from twenty to thirty grains; but if there be costiveness along with the acidity, it will be better to abstain from its use, and to employ some other antacid, as magnesia. When the chalk meets with an acid in the stomach, the substance produced generally renders the bowels slow, and for this reason chalk is used in looseness of the bowels. A preparation called the *chalk mixture* is kept in the shops; it is made by triturating together one ounce of prepared chalk, half an ounce of refined sugar, and two ounces of mucilage of gum arabic; gradually adding two pounds and a half of water, and a little cinnamon-water, to disguise the disagreeable taste of the chalk. There is no great nicety required as to the dose; one or two pounds may be taken in the course of the day; and in severe cases, a drachm of laudanum may be added to each pound of the mixture. Chalk is used in pharmacy for obtaining carbonic acid, and impregnating water with it. When diluted sulphuric acid is poured upon chalk, a great quantity of carbonic acid is disengaged, and by certain contrivances, the water is made to absorb several times its own bulk of it; it then becomes soda-water, aerated alkaline water, &c.

CHALYBEATES.

Chalybeate medicines or those con-

taining some preparation of steel or iron, are used in various diseases of debility, in stomach complaints, in cases attended with the non-appearance or suppression of the monthly discharge in women; in hysterics, and in debility produced by disease, or by excessive discharges of blood. Chalybeates are to be avoided in all fevers and inflammations, and when there is too great quickness of pulse, with too much firmness and rigidity of the solids. The general virtues of iron and its several preparations are, to take off flabbiness of the muscular fibre, to quicken the circulation, to promote the secretions, and to prevent too great discharges into the intestines. When iron takes effect on the body, the pulse is raised, the colour of the face becomes more florid and healthy, and the discharges by the skin, urine, and bowels, are increased. The stools are, in this case, commonly of a dark colour. Iron is sometimes used in the metallic state: it is, in this form, given in the centre of sweetmeats; iron filings are so used; but as no metal acts on the body till it be oxidated, it is better at once to give the oxides of it, than to take our chance of its being oxidized in the stomach. The carbonate of iron is a good and safe chalybeate, in cases where tonics are proper; and may be given in doses of from five to ten grains, either alone or mixed with some aromatic powder; and this quantity is to be repeated twice or thrice a day. This preparation of iron has of late been much recommended in cases of tic douloureux, or nerve pang, and in cancer. The sulphate of iron, or green vitriol, is another form of giving chalybeates. Two grains may be given twice a day, or a solution may be made of ten grains to a pound of water, and a table-spoonful taken twice or thrice a day, adding some syrup and cinnamon-water, to disguise the harsh taste of the iron. The tincture of the muriate of iron is also an excellent form of administering chalybeates. Ten drops of this tincture are to be given in cold water, twice or thrice a day.

Chalybeate waters contain iron, in the form of sulphate, carbonate, or muriate. They have a harsh taste, like ink; and are resorted to for the same purposes, and employed in the same diseases, as the preparations of iron.

CHAMOMILE.

The chamomile is a plant indigenous in the south of England, but cultivated in gardens for the purposes of medicine. The flowers are the part used. They have a strong aromatic smell, and a very bitter nauseous taste. They should be selected fresh, and when rubbed, should strongly exhale their peculiar smell. The large white flowers are generally preferred to the smaller kinds, which become brown in drying. Chamomile flowers have long been famous as an excellent aromatic bitter; the infusion of them is commonly known under the name of chamomile tea, and when taken pretty strong and warm, is either of itself employed to empty the stomach, or is used as an auxiliary to other emetics. A cup-full of chamomile tea, when cold, taken in the morning before breakfast, is a good aromatic, and helps to restore the tone of the bowels when suffering from debility. The powder of chamomile flowers was at one time employed in the cure of agues, but it is now disused. Chamomile flowers are often used externally as fomentations. The infused flowers are rolled up in a cloth or flannel, and thus retain the heat for a long time.

CHERRY-TREE BARK.

The bark of the *prunus virginianus*, or wild cherry-tree, has a bitter, astringent and slightly aromatic taste. It contains a portion of prussic acid, from the presence of which its effects, as a remedy in disease, have been explained. It is recommended in the cure of intermittents, consumption, asthma, and chronic affections of the stomach. It may be taken in powder, in the dose of from half a drachm to two drachms, or in infusion made by steeping an

ounce of the bark in a pint of cold water for twenty-four hours—dose, a wine-glass full every three or four hours.

CHLORINE.

Chlorine is the name of a gas, of a greenish colour, and possessed of very remarkable properties. It is a supporter of combustion; that is, inflammable bodies burn in it. It has a pungent and suffocating smell; and in experiments on it, it should not be suffered to escape into the room, as it is very injurious to the lungs, and may induce inflammation, consumption, or other diseases of those organs. It is heavier than common air. It is absorbed by water, and imparts to the latter, the property which itself possesses, of destroying vegetable colours. Hence, it is used in this form in bleaching. It is not used in its simple state as a medicine, except for fumigating apartments, in order to destroy contagion. It may be procured for this purpose, from a mixture of eight parts of common salt, three of black oxyde of manganese, four of water, and five of sulphuric acid.

This gas was formerly called the oxymuriatic acid, because it was believed to be the muriatic acid combined with a quantity of oxygen; but Sir Humphry Davy, having failed to decompose the gas by the most powerful chemical agents he could employ, considered chlorine as a simple body; and his views on that subject are now almost universally acquiesced in by chemists. In consequence, it became necessary to change the names of the compound bodies into which chlorine enters, and such substances are now termed chlorides. Thus, chlorine united, in one proportion, to mercury, was formerly the submuriate of mercury, but is now the chloride of mercury, or calomel; and chlorine, in two proportions, with the same mineral, is called bi-chloride of mercury; and from its properties and mode of preparation, corrosive sublimate. In speaking of substances so active, and about

which mistakes would be dangerous, it is better to dispense with chemical precision of nomenclature, and to prescribe, or to purchase them by the names of *calomel* and *corrosive sublimate*. The chloride of lime, and the chloride of soda have been found to have the valuable property of arresting putrefaction, and destroying the bad smell, both of living and dead animal substances. Three or four pints of water must be poured on two ounces of chloride of lime, the whole well mixed and strained, and the solution sprinkled over tainted places. The union of chlorine with soda, of which the minute chemistry need not be given here, is of excellent use in all bad-smelling, foul, and irritable ulcers, discharges, &c. It is commonly sold by the druggists under the name of chloride of soda, ready for use.

CITRINE OINTMENT.

This is an ointment made by mixing together lard and the nitrate of mercury. It is of great utility in many diseases of the skin of a chronic character, as ring-worms, tetter, and what is commonly called scalled head in children. Citrine ointment, when weakened with an equal quantity of simple cerate, is an excellent application in many chronic diseases of the eyes, especially in that redness and soreness of the eye-lids, so common in scrofulous children.

COLCHICUM.

The *Colchicum autumnale*, or meadow saffron, is a perennial, bulbous-rooted plant, which grows in wet meadows. The bulbs are used in medicine. The best time for gathering them is from the beginning of June till the middle of August. When recent, they have scarcely any odour; but their taste is bitter, hot, and acrid. A saturated vinous infusion is made, by macerating an ounce and a half of the dried bulb in twelve ounces of white wine; and this vinous infusion has been, on the recommendation of Sir Everard Home, much used in gout; in

which disease it is said to be almost a specific, as it very rarely fails to break up the paroxysm, sometimes acting on the bowels, at other times on the kidneys and skin, and often without any apparent accompanying effect. The dose is sixty drops, at bed-time, when the paroxysms of pain are violent. Its use, however, requires a great deal of judgment, in order to distinguish the cases in which its effects would be useful or otherwise. The celebrated specific for gout, known by the name of *eau medicinale d'Husson*, is said to be the vinous infusion of colchicum. It is but right to state, that the most judicious writers on gout consider all these specifics as ultimately dangerous. Colchicum is a valuable remedy in rheumatism, when the inflammatory state has been moderated by bleeding. Five grains of the powdered root are to be taken three times a day; or from one to two drachms of the wine, in some simple aromatic water; with the addition of a scruple of the carbonate of magnesia. An infusion or tincture of the seeds is found to have the same virtues as that of the bulb.

COLOCYNTH.

The coloquintida, or bitter purging apple, is the fruit of an annual plant of the gourd kind, a native of Turkey and Nubia. This fruit is about the size of an orange; the part used in medicine is the pulp, freed from its rind and seeds. It is very light and spongy, almost entirely soluble in water, forming an intensely bitter solution, which, when evaporated, forms the extract of colocynth of the London pharmacopœia. Colocynth is a very powerful and violent cathartic; producing in an over-dose, inflammation of the bowels bloody stools, and other alarming symptoms. It is seldom used alone. The *compound extract* of colocynth is a good combination of it with other purgatives, viz: aloes and scammony; it may be given either alone or combined with calomel. From five to ten grains of the extract seldom fail to clear the bowels by two or three copious evacua-

tions. Six grains of the compound extract, with four grains of calomel, will have the like effect. A most useful purgative pill is composed of aloes, scammony, and colocynth, known in the shops by the name of colocynth pills, or pills of aloes and colocynth; the dose of which is two pills, or three, at bed-time.

COLOMBO.

Colombo, sometimes called columba, is the root of a plant yet undescribed. It is said to be produced in Africa, in the country of the Caffres, and sent to Mozambique, from whence it is imported into Europe in bags and cases. It is usually imported in slices, from half an inch to three inches in diameter, having a thick yellow bark. It is very often brought to this country worm-eaten and decayed; but it should be selected as little so as possible. Its smell is slightly aromatic, its taste is strongly bitter, and slightly pungent. It is used in medicine as a bitter, and it, in general, sits well enough even on delicate stomachs. A weak infusion is a good form of exhibiting it, and it may be conjoined with aromatics. In this form it is used in stomach complaints, and looseness of the bowels, when no inflammation is present, and to restore the tone of the bowels, and of the system in general, after an attack of cholera morbus. The powder of colombo is also a very useful form of administering the medicine; from five to fifteen or twenty grains of the powdered root may be taken three times a day. The tincture is given in the dose of from one drachm to three; and its use is to be continued for some time, like other tonics and bitters. As is the case, however, with all other tinctures, its long continued use is productive of injurious effects.

COLT'S-FOOT.

The leaves and flowers of the *tussilago*, or colt's-foot, boiled in water, with the addition of a little sugar-candy, furnishes a very grateful demulcent in

cases of catarrh, consumptions, and other complaints of the chest.

CONTRAYERVA.

The contrayerva is a perennial plant, growing in South America and some of the West Indian islands; the root of which is used as a gentle stimulant and diaphoretic in typhus and dysentery. The dose is half a drachm; but it is in no great repute.

COPPER.

Copper is a well known and very valuable metal; from the various preparations of which, several active and useful substances in medicine and the arts are procured. The principal of these are, the ammoniuret of copper, the sulphate of copper, or blue vitriol, and the sub-acetate of copper, or verdigris. The two last salts of copper are principally used by surgeons as external applications. The blue vitriol is used as an escharotic to destroy proud flesh; and an ointment, made with verdigris, is useful in dressing indolent ulcers. The blue vitriol is also given internally, when an active metallic emetic is wanted. The dose is five or six grains; and it is chiefly when the vegetable narcotic poisons have been swallowed, that such emetics are employed. It is an object of much importance when such emetics are given, that no portion be left in the stomach, as it will be seen in the subsequent part of this article, that the preparations of copper are of themselves poisonous. On such occasions, therefore, plentiful dilution is required, by chamomile tea, tepid water, thin gruel, barley-water, or the like. The sulphate of copper has likewise been recommended in the treatment of agues, and various convulsive diseases; but the success obtained from its use in these cases, has not been very striking.

Poisoning with copper. Copper in its metallic state, exerts no action on the stomach, as has been proved by the very numerous cases in which children have swallowed copper coins

without any bad consequences. But though, in general, articles of food meeting with copper in the stomach do not render it noxious; we have many instances which show how dangerous are the mixtures produced by cooking the same articles in badly tinned copper vessels. When tin is present, it prevents the copper from being dissolved, and hence the utility of tinning such utensils. But any of the above-mentioned *salts* of copper, when taken to a certain quantity, are poisonous; and it is by the formation of one of these salts in culinary vessels, and its consequent admission into the system, that dangerous and even fatal accidents are sometimes produced. The acid contained in certain pickles, and other articles of food, acts upon the copper, and produces a salt which imparts deleterious qualities to the food prepared in such vessels. The symptoms induced are, head-ache, or dizziness, vomiting, thirst, with a constant taste of the copper remaining in the back part of the mouth; oppression at the breast, acute pain of the stomach, gripping of the bowels, eruptions on the skin, palsy, delirium, and death. The taste of copper is so nauseous, that persons are generally put on their guard against swallowing any considerable quantity of it; and it is chiefly when it is greatly disguised in food or medicine, that it has the opportunity of producing its deleterious effects.

Treatment of those who have swallowed copper. The vomiting which is excited when copper has been inadvertently swallowed, in general renders the exhibition of emetics unnecessary; but should sickness, without vomiting, accompanied with pain at the stomach, ensue, it may be proper to give ten or twelve grains of white vitriol to promote the speedy evacuation of the offending matter; and sugared water may be given largely to assist in the same purpose. When an emetic is not required, mucilaginous substances, oil, butter and milk, will be useful; but the latter experiments of Orfila, induce him to recommend the whites of eggs

in large quantities, as the best antidote against the poison of copper. Another good antidote is the ferrocyanate of potassa, called also the prussiate of potass. Vinegar, so frequently administered in cases of poisoning, must, in the instance of copper, be most carefully avoided.

CORROSIVE SUBLIMATE OF MERCURY.

This salt of mercury is called corrosive, from its properties, and sublimate from its being prepared by sublimation. It is soluble in water and in spirits of wine; it is also very soluble in sulphuric ether. Its taste is strongly styptic, metallic, and acrid; and remains very long in the mouth. Corrosive sublimate, from its solubility in water, from its activity, and from being easily disguised, is the active ingredient of almost all the cosmetics and washes for the diseases of the skin, and of those quack medicines of great pretensions, which are to cure the venereal disease without the use of mercury. All such should be regarded with great suspicion, and never employed; as their use is attended with the greatest hazard of introducing into the body one of the most poisonous substances known.

When corrosive sublimate is medically employed in order to obtain the effects of mercury on the constitution, its dose must be very small indeed, not more than the eighth part of a grain, night and morning, in solution, in distilled water, or made into a pill with liquorice and honey; and to that extent must be continued only for a very few days, and under the most judicious superintendence. The solution is sometimes applied as a wash in cutaneous diseases, in the strength of five grains to a quart of water; but this too must be watched, lest the mercurial effects be occasioned by absorption from the surface of the body.

Of poisoning by corrosive sublimate. Not unfrequently, by accident or design, corrosive sublimate is taken into the stomach. The symptoms produced are severe vomiting, purging, and pain in the belly, tightness in the

throat, dryness and shrivelling of the lips and tongue. The pulse is small, and the breathing oppressed, and there is commonly blood in the stools, and in the matter vomited. The period within which death occurs from this poison, is from eleven hours to thirty-six or forty. But the alimentary canal is not the only road by which corrosive sublimate may be introduced so as to act as a poison on the body. It is dangerous when applied to a wound in the cellular tissue; and when introduced in this way, has, like arsenic, the singular power of inflaming the stomach and intestines. It also possesses the power of inflaming both the lungs and the heart. Nervous affections, stupor, and convulsions, have also occurred.

Treatment. When inflammation of the stomach is very urgent, we must combat that symptom by general or local bleeding; aware, however, of the danger of great subsequent depression; and castor oil or other mild laxatives may be given. Albumen, or the white of an egg, has happily been ascertained to be a most effectual antidote to corrosive sublimate. The white of one egg renders four grains of the poison inert. A few years ago, this discovery of Orfila's was the means of saving the life of M. Thenard, the chemist. While at lecture, this gentleman inadvertently swallowed, instead of water, a mouthful of a concentrated solution of corrosive sublimate; but having immediately perceived the fatal error, he sent for the white of eggs, which he was fortunate enough to procure in five minutes. Although at this time he had not vomited, he suffered no material harm. Without the prompt use of the albumen, he would most infallibly have perished.

Many examples are recorded of the success of this practice. Vegetable gluten, as contained in wheat flour, is said to answer the purpose as well as albumen; and for this purpose we have only to give wheat flour and water; or to mix six parts of fresh gluten with fifty parts of a solution of soft soap. When neither albumen nor gluten is

at hand, milk is a convenient antidote of the same kind. All the other reputed antidotes, as liver of sulphur, bark, and charcoal, have been tried and found ineffectual.

COW-ITCH.

Cow-itch is the product of a plant growing in the East and West Indies. Its fruit is a pod, covered on the outside with reddish-brown hairs, which easily adhere to the fingers, and occasion a most intolerable itching. These hairs are formed into an electuary with jelly, treacle, or honey, and are used to expel worms, which they do mechanically; the intestines are protected, by the mucus with which they are lined, from the action of these hairs; but when they reach the worms, principally the long round worm, they occasion great irritation, and cause it to quit its hold, when it is expelled by a purge given shortly afterwards.

COXE'S HIVE SYRUP.

The hive syrup is made by boiling squill and seneca, of each four ounces, in four pints of distilled water, until the whole is reduced one-half; the product is then to be strained, and two pints added of clarified honey, when it is to be boiled down to three pints, and forty-eight grains of tartar emetic added to the residue. The dose is from ten drops to a tea-spoonful, according to the age of the patient. It is principally employed as an emetic and expectorant, in cases of croup, or in the breast affections of children.

CREAM OF TARTAR.

Supertartrate of potass, or cream of tartar, is a most useful medicine, obtained from the matter called tartar, which becomes incrustated on the bottom and sides of casks in which wine has been kept. This incrustation is purified by dissolving it in boiling water, and filtering it while hot; on cooling, the salt is deposited in irregular crystals, and is called crystals of tartar, or cream of tartar. This substance is a very effectual diuretic. When given

as such in dropsy, it may be taken in doses of a drachm twice a day, dissolved in a large quantity of water. It is also used as a purgative; in doses of half an ounce, made up into an electuary, with an equal proportion of sulphur, it is an excellent laxative in case of piles; and added to jalap, in the proportion of two parts of cream of tartar to one of jalap, it furnishes one of the best purgative powders we possess. It operates mildly and speedily, and besides its purgative effect, it is also diuretic. The dose of the compound powder of jalap is from forty to sixty grains, and it may be given in water, tea, or any fluid vehicle, taking care that the cream of tartar be suspended in it, by stirring it well immediately before taking it. Cream of tartar is not very soluble in water. The drink called *imperial*, is a solution of cream of tartar flavoured with lemon peel, and is very useful in feverish disorders, and other cases where a refrigerant drink is wanted. It is improper to use it, however, as an ordinary beverage, as it has a tendency to retard digestion.

CROTON OIL.

The croton oil is expressed from the seeds of the *croton tiglium*, and has only lately been reintroduced into medicine. It is a very powerful cathartic; and is given in cases where a full and rapid evacuation is required, as in cases of long and obstinate costiveness, which have resisted other means of relief. It is used in apoplexy and disorders of the head, and in convulsive diseases, low spirits, and madness. The dose is a single drop; or sometimes, though very rarely, two drops, either on a lump of sugar, or diffused through mucilage; or it may be made into a pill with crumb of bread. This dose empties the bowels completely, and excites a copious watery secretion from them. Caution must be had in the exhibition of so active a medicine; and it is to be remembered that different samples of the oil differ in their activity.

CROWFOOT.

The *ranunculus bulbosus*, or crow-foot: it is employed principally as a diuretic.

CUBEBS.

The Java Pepper, *piper cubeba*, or cubebs, has lately been restored to the Materia Medica, principally as a cure for gonorrhœa. The berries have the appearance of common pepper; but each berry has a short stalk attached to it. The best are those which are large, heavy, and fragrant. Their flavour is aromatic and bitter. The form for administering them is in powder, in doses of one or two drachms, three or four times a day, in a wine-glass-ful of water. The tincture also may be employed. Cubebs are most advantageously given in the early and acute form of the disease; and they moderate the pain, and lessen the discharge, with considerable certainty. The urine is increased, becomes deep-coloured, and acquires an aromatic odour. Dr. Paris suggests a caution necessary during the use of cubebs, viz. to keep the bowels open; for where the hardened stools are allowed to accumulate, the spice insinuates itself into the mass, and produces excoriation at the lower part of the bowels.

DALBY'S CARMINATIVE.

Dalby's carminative is a quack medicine, which is entitled to a *little* more regard than the tribe of its pretending and noxious brethren. The ingredients of this medicine are the carbonate of magnesia; the oils of peppermin^t, nutmeg, and aniseed; the tinctures of castor, assafoetida, and opium; the spirit of pennyroyal, the compound tincture of cardamoms, and peppermint water. In *proper hands*, it often answers the purpose for which it is given, and relieves the flatulence which is so distressing to infants. The dose is from two tea-spoonfuls to a table-spoonful, mixed with a little sugar and water. There is no reason, however, why the physician should recommend it; the

mischievous tendency of a quack medicine does not depend upon its composition, but upon its application. We ought to remember, says an eminent physician, that in recommending this nostrum, we foster the dangerous prejudices of mothers and nurses, who are unable to ascertain the circumstances under which it should be given, or even the proper doses. If its composition is judicious, why do not physicians order the same in a regular prescription, rather than in a form in which the most valuable remedy will be abused? This carminative is improper in all cases attended with fever, or in which there exists any degree of inflammation of the bowels.

DANDELION.

The root and herb of the *taraxacum*, or dandelion, has long enjoyed the reputation of an excellent alterative in chronic affections of the liver and other viscera. The extract of dandelion has also been employed with advantage in chronic inflammation, incipient scirrhus of the liver, and in chronic derangement of the stomach. The dose of the extract is from ten grains to a drachm. A decoction is made of the recent full-grown root sliced, in the proportion of one ounce to the pint of water, boiled down to half a pint, a drachm of cream of tartar being added to the strained liquid; of this, the dose is, two or three ounces, twice or thrice a day. In chronic affections of the liver, jaundice, &c., advantage has been derived from eating the green leaves, when young and tender, in the form of a salad. The roots of the dandelion, roasted, are used in some parts of Germany, by the poorer classes, for coffee; from which a decoction of them properly prepared, can hardly be distinguished.

DENARCOTIZED OPIUM.

Opium deprived of its narcotine, is said to relieve pain and induce sleep, without producing the disagreeable consequences resulting from the article in its ordinary form. It is now kept by

the apothecaries in this form; the dose is the same as of simple opium.

DEWBERRY.

The root of the *rubus trivialis*, or common dewberry, possesses the same properties and is employed in the same diseases, as the root of the blackberry, or *rubus villosus*.

DOGWOOD.

The bark of the *cornus florida*, as well as that of the *cornus sericea*, or dogwood, differs but little in its chemical composition from the peruvian bark, for which it has been advantageously substituted in the treatment of those diseases in which the bark is employed. The dose, in substance, is thirty-five grains of the bark. A decoction of the small branches and buds agrees well with weak stomachs, and is, perhaps, the most eligible form of exhibiting this medicine. The active properties of the dogwood, have been found to reside in an alkaline substance, which can be readily extracted in a pure state; in combination with sulphuric acid, it may be employed as a substitute for the sulphate of quinia.

DOVER'S POWDER.

The ingredients of Dover's powder are, for every ten grains of the powder, one grain of opium; one grain of ipecacuanha, and eight of the sulphate of potass; the use of this last substance being chiefly mechanical, to effect the more complete trituration and mixture of the others. Dover's powder is a most valuable sudorific in cases of chronic disease, and affords a good example of one medicine so altering the properties of another, as to produce a third substance possessed of new powers. It is much used in rheumatism, in dropsy, in catarrh, and in many other diseases where perspiration is required. The soothing effects of opium seem to be greatly increased by its combination with the ipecacuanha. In inflammation of the bowels, after the free use of blood-letting; and in puerperal fever, when there is much

restlessness and irritability, Dover's powder is an excellent medicine. When we wish to promote perspiration by means of it, it is proper to abstain from drinking much till after the sweat begins to flow.

DYSPEPTIC LEY.

A ley made by infusing a quart of hickory ashes and six ounces of clean soot in one gallon of boiling water, for twenty-four hours, the clear liquor being then poured off, has been highly recommended, in the dose of a tea-cupful three times a day, as a remedy in chronic cases of dyspepsia, attended with much acidity and flatulence.

EFFERVESCING DRAUGHT.

The effervescing draught is made by dissolving a drachm, or a draehm and a half of carbonate of soda, of potash, or of ammonia, in an ounce of water, and mixing with this an ounce of lemon-juice, with a little water and sugar; or if lemon-juice can not be procured, dissolving a drachm of crystallized citric or tartaric acid in an ounce of water, and adding this to the alkaline solution. The two solutions when they meet, occasion, by their mutual action, an effervescence, in consequence of the escape of the carbonic acid; and should be swallowed while this action is going on; or the one may be swallowed before the other, that the action may take place in the stomach. The medicinal virtues of the effervescing draught are to check vomiting, and to determine to the skin; hence it is very useful in a variety of diseases, especially feverish and dyspeptic complaints. The materials for making the effervescing draught are kept in the shops under the name of soda powders, and directions are given for their use. They are thought to give relief in the symptoms of indigestion which follow over-indulgence in eating or drinking.

ELATERIUM.

The elaterium is a feculent substance that subsides from the juice in the pulp

of the wild cucumber, *momordica elaterium*, surrounding its seeds. It is remarkable for its powers as a cathartic, producing copious watery stools; hence it is used in dropsy; and in many cases, it will evacuate the water, when other cathartics and diuretics have failed. It is a medicine of much uncertainty in its operation, and requires, therefore, to be given with the greatest possible caution; an over-dose of it occasioning violent purging, attended with great debility. The dose of good elaterium, as it occurs in commerce, is about one grain; but it is better to give it only to the extent of half a grain, or a quarter of a grain at a time, and to repeat that dose every half hour until it begins to operate. It is probably, when thus managed, the best hydragogue cathartic which we possess; it differs, however, from the class of remedies to which it belongs, for it excites the pulse and whole system so as to produce a considerable degree of febrile action; and hence is improper in all cases attended with fever and connected with inflammation.

ELDER.

Of the elder, (*sambucus canadensis*) the berries, flowers, and interior bark, have all been recommended as remedies in dropsy. They are presumed to act as a cathartic, diaphoretic, and alterative. Of the expressed juice of the berries, the dose is from two to four draehms; of the inner bark, five to twenty grains, three or four times a day; or a decoction may be made, by boiling an ounce of the bark, in two pints of water, down to one pint, the dose of which is from two to four ounces.

ELECAMpane.

The root of the *inula helenium*, or elecampane, is occasionally employed as an expectorant; its remedial powers, however, are believed to be very trifling.

ELIXIR OF VITRIOL.

The elixir of vitriol is merely a mixture of sulphuric acid and alcohol, in

which ginger and cinnamon have been macerated for some time. It possesses the properties of the diluted sulphuric acid, instead of which it is generally employed for internal use.

ELM.

The inner bark of the *ulmus fulva*, or slippery elm, contains a great quantity of mucilage, which may be extracted by infusion in water or by decoction. It forms an excellent demulcent in all cases in which a medicine of that class is required; as in catarrhal affections, pneumonia, consumption, diseases of the urinary organs, diarrhœa and dysentery.

EPSOM SALT.

The Epsom salt is one of the most useful of the saline purgatives. It is composed of sulphuric acid combined with magnesia, and is procured by the evaporation of mineral waters, in which it is the chief ingredient, as those of Epsom in Surrey, and likewise by the evaporation of the bittern remaining after the extraction of salt from seawater. It is one of those purges which are the most esteemed, and employed in the greatest number of cases of disease; it has nearly superseded the use of Glauber's salt, as being less harsh and disagreeable. The dose for a grown up person is from one ounce to an ounce and a half, dissolved in half a pint of water, and drank lukewarm. The morning is the best time for taking saline purges. Epsom salts may also be given in the infusion of senna leaves; a quarter of an ounce being dissolved in four or six ounces of the infusion. The same mixture, of increased strength, may be given as a purgative glyster.

ENEMAS, OR CLYSTERS.

For flatulent colic. Assafœtida, two drachms, and thin gruel, or starch, ten ounces, well mixed together.

Purgative enema. Senna leaves, three ounces, sulphate of soda, one ounce, and boiling water one pint; when cold, strain.

Common enema. Warm water, one pint, olive oil and molasses, of each one ounce, common salt, one drachm.

Anodyne enema. To relieve pain in the lower part of the bowels, constant straining, as at stool, or profuse diarrhœa. Thin starch, half a pint, olive oil, one ounce, opium, from a half to two or three grains for an adult, smaller doses, in proportion, for a child.

ERGOT.

The ergot is an excrescence sometimes found in rye, *secale cereale*; said to have powerfully poisonous effects, and occasionally used in labour and uterine complaints. It has lately, in doses of twenty grains, been recommended as a remedy in various cases of hæmorrhage. It must be cautiously abstained from during pregnancy.

ETHER.

Ether is a highly volatile and inflammable liquid, of a fragrant smell, and pungent to the taste. It is prepared by adding together acids and spirit of wine, and distilling with great caution. The ether, which is the product of distillation, varies according to the acid used; hence we have sulphuric, nitric, muriatic, and acetic ethers. The ether in most frequent use is the *sulphuric*. It is used internally as a stimulant and cordial, in cases attended with extreme prostration of strength, and to relieve cramps, and other irregular actions of the system. It is given to persons in asthma, hysterics, and convulsions, when no fever or inflammation exists; and also when certain vegetable poisons have brought on alarming debility, it is employed to rouse the system into action. The dose internally is half a tea-spoonful in water; or the like quantity with twenty or twenty-five drops of laudanum, and half a glass of water. By its volatility and rapid evaporation, it may be made to produce a great degree of cold on the surface of the body, and it is hence used to alleviate the pain of tooth-ache and head-ache. A

portion is placed in the hollow of the hand, and the hand being put on the part affected, great heat is produced; and by the sudden removal of the hand, the ether is allowed to evaporate, and the cold that follows sometimes relieves the pain. Great care should be taken to keep lighted paper, or candles, at a distance from the vessels in which ether is kept.

Nitrous ether; sweet spirits of nitre.
An ether procured from the action of nitric acid upon alcohol. It differs somewhat in its effects upon the system from the sulphuric ether. Thus it acts powerfully upon the kidneys, and in debilitated habits, and in children, it is an excellent remedy, particularly in slight fevers, or when an increased flow of urine is desirable. It likewise acts upon the skin, producing diaphoresis, and this without greatly weakening the patient. It has a far less stimulating effect upon the heart and arteries than sulphuric ether. It is given in doses similar to the latter.

Hoffman's anodyne. A species of sulphuric ether, which disposes more to sleep than the common kind; hence called, after its discoverer, Hoffman's anodyne. It is used in the same cases and doses as the sulphuric ether.

FERN, MALE.

The powder of the male fern, *aspidium filix mas*, has been supposed to be good for expelling the tape-worm. The inner solid part of the root is the part used, in the dose of one or two drachms; but as strong purgatives are generally given either along with it, or immediately after it, it is not unlikely that when the worm is discharged, the good effect is owing to the purgatives. The powder of the male fern was an important ingredient in the celebrated worm powder of Madame Nouffer.

FLAXSEED.

The seeds of the *linum usitatissimum*, or common flax, when infused, yield a very useful mucilaginous drink, known by the name of flaxseed-tea; and of great use, when mild diluents are

wanted. It is useful in disorders of the urinary bladder, in dysentery, in colic, and similar affections. Flaxseed meal forms an excellent emollient poultice.

FOXGLOVE.

The *Digitalis*, or foxglove, is a plant which grows in many places of Great Britain, as well as in this country, producing purple or white bell-shaped flowers. Foxglove furnishes a medicine of great celebrity, and possessed of remarkable powers on the human body. The part of the plant which is used, is the dried leaves, either in the form of powder, of tincture, infusion, or decoction. On account of its great hazard and uncertainty, we rarely prescribe either the infusion or decoction, but find the powder and tincture more manageable. The effects of foxglove are those of a sedative and diuretic. As a sedative, it seems better entitled to that name than any other medicine which has received it; as it has little appearance of previously stimulating, and as it is not followed by the stupefying effects common to opium and other narcotics. Indeed, at one time, physicians had high hopes that digitalis was to prove a specific in consumption, and to bring down the pulse and diminish the hectic excitement with unerring certainty. Though it has not been found to do this, yet, when the pulse is full, hard, and frequent, it diminishes the intensity of all these states, and reduces the number of beats in a wonderful manner, at the same time rendering the pulse intermitting. The pulse has been known to fall in the course of six hours from 130 beats to 60 in a minute; and in a hectic patient, it fell from 125 to 45 beats in the minute, in the course of forty-eight hours. With this reduction of the hardness, fulness, and frequency of the pulse, the remarkable circumstance frequently attends, that if the patient gets up suddenly, the pulse becomes alarmingly frequent, he is seized with fainting fits, and sometimes dies very suddenly. Hence the

necessity of extreme caution in the exhibition of this powerful substance, and the necessity of the utmost vigilance on the part of the medical attendant, lest, before he is aware, there be such a quantity of digitalis accumulated in the system, (or, what is the same, lest the effects of one dose be so backed by following ones,) as to give rise to the fatal result above specified. What has appeared a very small quantity indeed, has proved fatal to some. The symptoms indicating an over-dose are these: sickness of the most dreadfully distressing kind, vomiting, purging, cold sweats, great prostration of strength, fainting, convulsions, and death. When these alarming symptoms have come on, strong stimulants must be given, as wine, spirits, or ether, or the volatile tincture of valerian; external warmth must be applied to the extremities, and a blister to the pit of the stomach. The remarkable effect of digitalis in diminishing the action of the heart and arteries, suggests the inquiry, whether, in inflammatory diseases, its powers might not be so managed as to render large bleedings unnecessary. The answer to this must be in the negative. No judicious or candid person will ever say, that digitalis will cure acute pleurisy, or phrenzy, or rheumatism. The abstraction of blood by the lancet is a means of cure in such diseases, sanctioned and confirmed by the uniform experience of ages; and whatever auxiliaries we may admit, it can never be superseded by any of them. After copious bleedings in acute diseases, digitalis may be used to lessen still farther the action of the circulating system, but we must never trust to it alone.

As a diuretic, foxglove has been celebrated, more particularly for its effects in dropsy of the chest, than in any other affection. Perhaps this may be owing to the circumstance, that many of the symptoms believed to be characteristic of water in the chest, are often connected with some disease of the heart and great vessels; and as digitalis certainly does some good in

such diseases, it is thought to have done good in the dropsy of the chest. Digitalis, when used as a diuretic, should be combined with other diuretics, as squill, or the spirit of nitrous ether.

With respect to the doses of foxglove: at first, we are to give, of the powdered leaves, one grain in the form of pills twice a day, increasing the dose gradually by a quarter of a grain each time, till some effect is produced; recollecting that if any effect is long of manifesting itself, there is a possibility of the medicine accumulating in the system, and at last showing its alarming effects with violent rapidity. Of the tincture, ten drops twice a day are enough to begin with; increasing the dose gradually by four drops at a time, or directing ten drops to be taken three times a day. The best way is to give the tincture carefully dropped in cold water, or to join equal parts of the tincture of foxglove and of the compound spirit of lavender, and to order twenty drops of the mixture in water. When given as a diuretic, we may add a drachm of the tincture to an ounce of the spirit of nitrous ether, with five ounces of cinnamon or peppermint-water, and give a table-spoonful of this every three hours.

GALL-NUTS.

The gall-nuts are excrescences formed upon a kind of oak common in Asia Minor; they are produced by the puncture of an insect to deposit its eggs. When the little insect comes to maturity, it eats its way out of the excrescence, which is from a quarter to an inch in diameter; hence gall-nuts are generally found with a hole in them. They abound in astringent matter or tannin; a decoction of them may be used as a gargle, and one part of finely powdered galls added to eight parts of any simple cerate or ointment, is a good application for piles. The tincture of galls is sometimes used internally as an astringent in cases of profuse discharges from the bowels, accompanied with great prostration of the system

GALBANUM.

Galbanum is the inspissated juice of an African tree, the *bubon galbanum*. It is employed in hysterical complaints, habitual asthma, and spasmodic and flatulent colic, as an antispasmodic, and as an expectorant in the latter stages of pneumonia. The dose is from twenty to sixty grains, in pills; or in the form of tincture, from one to three drachms. Externally, galbanum is applied to discuss indolent tumours. The remedy is improper in all cases where active inflammation or fever is present.

GAMBOGE.

Gamboge is a gum resin brought from the East Indies, and is obtained from the *stalagmitis cambogioides*. It is of a bright yellow colour, has no smell, and little taste. It acts strongly on the bowels, not only evacuating them of feculent matter, but occasioning the discharge of much watery fluid; hence it is reckoned a drastic and hydragogue cathartic. In certain cases of dropsy, either alone or combined with other purgatives, it has been found useful by occasioning very copious watery stools. The dose of this active substance, when no other purgative is taken along with it, is from two to four grains of the powder, mixed in a little syrup or gruel, with a grain or two of aromatic powder. Gamboge is apt to cause vomiting; but if it does not, it clears the bowels very effectually. When there is much torpor in the system, as in apoplectic cases and other diseases of the head, a strong purge, composed of six grains of gamboge, ten of aloes, and as much jalap, will have a good effect in opening the bowels, and relieving the stupor. One grain of gamboge with two of calomel may be given in the obstinate costiveness of children.

GEOFFRA BARK.

This bark is strongly recommended for the destruction and expulsion of worms. The powder is used in doses

of thirty grains; the extract, in doses of three grains; or the decoction made by boiling one ounce of the bark in a quart of water, until the latter assumes the colour of Madeira wine, may be employed in the dose of four table-spoonfuls for an adult; one table-spoonful for a child of two or three years old, and in less quantity for younger patients. If too large a dose be given, its effects are sometimes very violent, producing excessive vomiting and purging, delirium and fever. Cold water should not be drunk during the employment of the remedy. When unpleasant effects result from its use, a large dose of castor oil should be given; the patient drinking plentifully, at the same time, of tepid water, acidulated with lemon-juice, or other vegetable acid.

GERANIUM MACULATUM.

The spotted cranesbill, or geranium maculatum, grows abundantly in almost every portion of the United States. The root is the part employed in medicine. It possesses very considerable astringent properties, free from any bitterness or other unpleasant flavour. In the bowel affection of children, in which an astringent is required, the geranium, boiled in milk, is one of the most convenient and efficacious we can employ.

GLAUBER'S SALT.

The sulphate of soda, or Glauber's salt, acts as a prompt cathartic, producing large fluid stools. It is employed in the same cases as the Epsom salt—dose one drachm dissolved in six ounces of water.

GOLD.

The muriate of gold has, of late years, been introduced into use as a valuable tonic and alterative in syphilitic and scrofulous diseases. Orfila and Christien rank the muriate of gold among the poisons; the latter considers it even more virulent than corrosive sublimate. The dose is one fifteenth of a grain; beyond one-tenth

of a grain it will excite fever and inflammatory symptoms. It must, therefore, be viewed as a dangerous, if not useless remedy.

GREGORY'S POWDER.

This is a useful laxative powder, composed of equal parts of calcined magnesia, powdered rhubarb, and ginger; it was a favourite prescription of the late Dr. Gregory, of Edinburgh. He considered it as possessing various good properties, the magnesia correcting acidity, the rhubarb acting as a tonic and laxative, and the ginger being a good aromatic for the stomach, and preventing griping of the bowels. The dose of this compound powder is one or two drachms, or a heaped tea-spoonful; and it may be taken in water, in gruel, milk, or any vehicle, that may be most convenient. It generally operates easily and effectually, and may be taken at any time of the day. The dose may be repeated after an interval of four or six hours, if the first does not produce its proper effect. Sometimes it may be advisable, especially for children, to omit the ginger, and to give simply a mixture of rhubarb and magnesia, in the dose of a small tea-spoonful.

GRIFFITH'S PILLS.

Griffith's pills are employed as an excellent cathartic in all bilious cases, and in the commencement of fevers. They are composed of jalap, rhubarb and soap, of each thirty grains, calomel twenty-five grains, and tartar emetic one grain and a half; a few drops of water being added, the ingredients are well mixed together, and divided into twenty-five pills. Two of them may be taken at once, and if they do not operate sufficiently, to be repeated in the course of two hours.

GRIFFITH'S MYRRH MIXTURE.

This tonic mixture is recommended principally in cases of consumption, attended with night sweats, and general debility. It is composed of myrrh one drachm, sulphate of iron one scruple,

sub-carbonate of potass one drachm, purified sugar two drachms, and hydrant or spring water six ounces, mixed well together. The dose is a table-spoonful occasionally.

GUIACUM.

Guaiacum is the name of a plant, from which there exudes in the form of tears, a resin which has been long esteemed a good remedy in chronic rheumatism; in certain syphilitic symptoms, as foul indolent ulcers; in some diseases of the skin, and scrofulous affections of the membranes and ligaments. The resin excites a sense of warmth in the stomach, and a thirst and dryness of the mouth; and produces perspiration, if the patient be kept warm. It may be given in the form of pills, in the dose of ten to twenty grains in the day; one or two drachms of the tincture may be given, but not in water, as from its resinous quality, it immediately becomes white and thick when added to water, to the great surprise and disgust of the patient; for this reason, it had better be given in a little milk. The decoction of the wood of guaiacum is a form of giving it, much used in cases of foul ulcers. The dose of the decoction is from two to four ounces. There is also a tincture of guaiacum combined with harts-horn, which possesses more of the stimulant and sudorific properties, and may be taken to the extent of a drachm or two. When the dose of guaiacum is larger than those above mentioned, it proves purgative. Guaiacum, in any form, is an improper remedy in all febrile and acute diseases.

HELLEBORE.

The Hellebore is a medicine famous in classical antiquity for being used in the cure of madness. It is the root of a plant that grows in the Pyrenees and Apennines. It is a violent purgative and emetic; but whatever may be its powers, we can produce equal effects by milder and more manageable substances, and hellebore, accordingly, is neither for cases of madness nor for

any other purpose, in much estimation in modern practice, though some think it useful in promoting the monthly discharge, and in procuring a copious flow of water in dropsical cases.

HEMLOCK.

The hemlock is a plant growing very commonly about the sides of fields, under hedges, and in moist shady places. It is very poisonous, but more so in spring than in autumn. When taken in an over-dose, it produces giddiness, dimness of sight, sickness, tremors, and palsy. But in small doses, it may be used safely, and it is capable of being so managed as to prove a valuable anodyne and narcotic. It is a good palliative in pulmonary irritation, and is much used in cases of scirrhus and cancer; but with no good effects beyond those of a narcotic. When applied externally, in the form of fomentation or cataplasm, it affords considerable relief in irritable ulcers. It is used internally in the form of inspissated juice, or extract, as it is called, in the dose of one grain to five; and the powdered leaves have been given in the dose of two grains, gradually increasing to twenty. It is thought to have the narcotic, without the constipating effects of opium; but this valuable property belongs more indisputably to the plant which forms the subject of our next article.

HENBANE.

The henbane is a common plant, whose leaves have a peculiar nauseous odour, and a bitter taste. Its properties are those of an anodyne, and it has great resemblance to opium in all its effects, with the favourable exception, that it does not, like opium, render the bowels costive. Its doses require to be a little larger than those of opium: of the tincture, from half a drachm to a drachm may be given; and of the extract, from five grains to fifteen. In over-doses, it brings on symptoms like those brought on by hemlock. The infusion, or the solution of the extract, when applied to the eye, causes a dilata-

tion of the pupil. Mr. Brande says, he has found henbane of much service in allaying the irritation occasioned by red sand in the kidneys; and it is found that henbane, combined with colocynth, takes off the griping tendency of the latter, without impairing its purgative effects.

HOOPEY'S PILLS.

These pills are principally used as an emmenagogue. They are improper, however, in robust habits, and whenever there is any degree of fever, disease of the bowels, or fixed local pain. They are composed of twenty grains sulphate of iron, and of ten grains of each of the following powders: senna, jalap, cream of tartar, and ginger; a small quantity of simple syrup being added, the whole is divided into twenty-five pills; the dose of which is, three twice a day.

HOP.

The hop has a fragrant and sub-narcotic odour, and a bitter, astringent and aromatic taste. It is given to fulfil various indications in the treatment of diseases. A weak infusion in cold water is considered a tonic in certain diseases of the stomach, occurring particularly in drunkards; a stronger infusion is recommended as a diuretic and narcotic. A poultice of hops steeped in warm water, makes an excellent application in cases of local pain, unattended with inflammation; and a pillow filled with them, has been found to procure sleep in cases where the administration of narcotics has been deemed improper. The active properties of the hop are found to reside exclusively in a substance of not more than one-sixth part its weight, easily separable from it by threshing and sifting, to which the name of *lupuline* has been given.

HOARHOUND.

The leaves of the *marubium vulgare*, or the common hoarhound, have been recommended in infusion, principally as an expectorant and diaphoretic.

A syrup made from a strong infusion with the addition of honey and lemon-juice, is a very popular prescription in common colds.

HYDRIODATE OF POTASSA.

A solution of the hydriodate of potass, made from one drachm of the salt, to one ounce of distilled water, has been recommended as an emmenagogue, and in cases of gonorrhœa, leucorrhœa, &c.—dose, thirty drops. A salve made from a drachm of the hydriodate of potass, to an ounce of fresh lard, is an excellent application for the removal of indolent swellings, scald head, and various chronic affections of the skin.

ICE.

Ice, or iced water, is frequently used in medicine, for the purpose of contracting the vessels of the stomach, in cases of vomiting of blood; it is applied externally in ruptures, to diminish the bulk of the swelling by reducing the temperature; also to obviate the effects of burns, and to remove violent inflammations; and in cases of inflammation of the brain, apoplexy, convulsions, delirium and madness, iced water, or powdered ice is applied to the head, to lessen the flow of blood to it, and to abate inflammatory action.

ICELAND MOSS.

Lichen, or moss, is the name of a genus of plants, of the class cryptogamia; familiar to the sight, by at least one species of it, forming the green or gray covering of old walls or ruins. There is one species called the *lichen islandicus*, which has obtained some reputation as a remedy in consumptions, coughs, dysenteries, and diarrhœas. It is principally at Vienna that these good effects have been celebrated; but the article has been admitted into the London Pharmacopœia. It consists of a bitter matter, and a kind of mucilage, by which it acts as a tonic, and as an article of nutrition; but it has no title to any estimation as being a remedy in consumption. The form in which it

is used is in decoction, to the extent of one or two ounces; the bitter part being first extracted by steeping it in warm water.

INDIAN TOBACCO.

The *lobelia inflata*, or Indian tobacco, is a plant indigenous to the United States, in most parts of which it grows in great abundance. The leaves and capsules are extremely acrid, and when held in the mouth for a short time, produce giddiness and pain of the head, with a tremor of the whole body; at length, extreme nausea and vomiting occur. It is employed as a very active emetic, producing great relaxation of the system, copious perspiration, and often purging. The tincture has been recommended in asthma, in doses of a tea-spoonful. The lobelia is one of the remedies in great repute among the Thompsonian practitioners. It is, however, an active and dangerous remedy, from an over-dose of which the most serious effects may be produced.

INDIAN TURNIP.

The root of the *arum triphyllum*, or Indian turnip, when fresh, is extremely acrid, producing, when taken into the mouth, a smarting pain of the tongue and fauces, which continues for many hours. This acidity is lost by drying. The dried root has chiefly been employed as an expectorant in diseases of the chest, unconnected with active inflammation, or fever. In the chronic asthma of old persons, it is also said to be a good remedy.

IODINE.

The iodine is a chemical substance, discovered at Paris, in 1812. It is obtained by certain processes from the ashes of marine plants, and employed as a medicine with considerable advantage in the cure of swellings of the glands of the neck. The burnt sponge was formerly prescribed for such swellings, and had totally lost its reputation when the discovery that it contained iodine, restored hope of its being of some benefit, and showed the grounds

on which such a hope rested. The forms in which iodine is used, are the tincture, of which the dose, at first, is ten drops a day, in any viscid liquor, as gum, syrup, or gruel; or the hydriodate of potassa, of which the dose is about the same quantity. Ointments, are also made with iodine, in the proportion of one drachm of hydriodate of potassa, to three drachms of lard; and of this ointment, a piece, about the size of a hazel-nut, is to be rubbed in upon the swelling, night and morning. Very unexpected diminution of enlarged glands has followed the use of this substance. In some cases, it produces feverish symptoms, thirst, restlessness, and diarrhœa; in which event, it should be discontinued, and the proper remedies applied to these injurious symptoms.

IPECACUANHA.

The ipecacuanha is the root of a plant found in Brazil: it is one of the best and safest of our emetics. The introduction of this celebrated root into medical practice, was chiefly owing to Helvetius, grandfather of the celebrated author of the work *De l'Esprit*, who came from Holland to Paris very young to practise medicine. He attended and cured a drug merchant, who paid him with a packet of the root from Brazil, called ipecacuanha. After some experiments in the hospitals, Helvetius found it possessed the virtue of curing dysentery. Before the end of thirty-two years, he had made 100,000 crowns, by the cure of that disease. Louis XIV. gave him a thousand louis for his secret. So famous was the success of the root, that it obtained the name of *radix anti-dysenterica*. It does good in pure dysentery, by maintaining a steady motion of the intestines downwards, and by determining to the skin; but in modern practice, we do not trust the cure of that very distressing, and, in warm climates, dangerous disease, alone to ipecacuanha, or to any one remedy.

For every purpose for which an emetic is advisable, no better than ipecacuanha can be desired. Even an over-

dose has merely the effect of producing too hasty an evacuation of the stomach, but without any bad effects. It may be given as an emetic to very young children, and is not followed by the debilitating exhaustion induced by metallic and other emetics. The root is reduced to powder, and the dose for a grown-up person, is from fifteen to twenty grains; and for a child above a few weeks old, from six to twelve grains, according to the age. White wine extracts the emetic properties of ipecacuanha; and the ipecacuanha wine is a very good form of administering it, provided there be no degree of fever present. To a child, a tea-spoonful of the wine may be given every ten minutes, till it operates. Like other emetics, or perhaps with virtues superior in this respect, it proves an excellent expectorant; and may be taken for this purpose, in doses of three or four grains, three times a day; or made up into lozenges, with some sweet or aromatic substance; the ipecacuanha lozenges contain half a grain each. In nauseating doses, ipecacuanha is very useful in hæmorrhages from the lungs and uterus. In dysentery, it may be used as an auxiliary to other means. Combined with opium, it forms the celebrated Dover's powder, now called the powder of ipecacuanha and opium, which is a very effectual sudorific; and for its soothing effects in colds, rheumatisms, and various instances of disordered bowels, unattended with fever or inflammation, is one of the most salutary compositions of the pharmacopœia.

IRON.

This metal, so widely diffused through nature, so essential in its metallic form, and its larger aggregations, to the comfort, and even the existence of civilized society, is capable of entering into various chemical combinations, which render it fit to be taken into the body, and capable of producing various salutary effects, in certain diseases. Its effects are principally of a tonic, or strengthening nature. The prepara-

tions of iron most in use, are the carbonate, the sulphate, and the tincture of muriate of iron; steel filings are also used, in the view of their being oxidized in the stomach and intestines, in consequence of the minuteness of their division. The doses of the various preparations of iron, when used as tonics, are the following: of the carbonate, from ten to fifteen grains may be taken in any tenacious substance, as jelly, honey, or the like; of the sulphate, one or two grains may be rubbed together with aromatic powder, and taken, at first, once, then twice a day; of the tincture of muriate of iron, ten drops may be given in water, twice a day, increasing them to twenty or thirty. The metallic iron for internal use is commonly inclosed in sweatmeats, and known by the name of steel caraways, the dose of which is a matter of no great nicety. The carbonate of iron has of late been celebrated for other virtues than those of a mere tonic in cases of debility, and has been thought serviceable in the painful affection of the face, called the nerve-pang, and also in cancer. The dose for this purpose is ten grains, four times a day. A watery solution of the tartrate of potass and iron, is recommended as a chalybeate, particularly suited to children, from its tasteless quality. Patients who are using any of the preparations of iron are apt to be very much alarmed at the black appearance of the stools; but it is merely a consequence of the iron, and will go off when it is discontinued.

JALAP.

The jalap is a plant growing at Xalapa, in Mexico, the powdered root of which is a very useful and much employed purgative. The dose is from ten to twenty grains, but it is not often used by itself, but commonly conjoined with calomel, in the proportion of one part of calomel to two of jalap; the dose of such a purge, for an adult, of good strength, is five grains of calomel, to sixteen of jalap, to be taken in jelly, honey, or any viscid substance, to pre-

vent the calomel falling down by its great weight. To form a very drastic or active purge, as may be desirable in some affections of the head, or with the view of bringing off a large quantity of water in dropsies, a purge may be formed by joining together six grains of aloes, ten of jalap, and five of scammony or gamboge; the watery stools produced by such a dose are sometimes of a surprising quantity, and give very great relief.

Compound powder of jalap. Another most useful form of employing jalap, is by combining it with cream of tartar; constituting the compound powder of jalap, one of the most manageable of purgatives, which, with most persons, acts very speedily and safely, and not only evacuates the bowels, but, for the time, increases the flow of urine. The proportions are, one part of jalap to two of cream of tartar; and the dose of the compound powder is from forty grains to sixty. It may be taken in plain water, gruel, syrup, or any mild liquid most convenient for the patient.

JUNIPER.

The fruit of the juniper contains an essential oil, possessed of diuretic powers; and it is this oil that gives to gin its diuretic properties, and causes it often, improperly, to be given to patients labouring under dropsy. The essential oil of juniper may be given to promote the flow of urine, in the dose of from two to ten drops upon white sugar, or formed into an emulsion, with a drachm or two of the sweet spirit of nitre.

KENTISH OINTMENT.

This ointment, made by mixing together two ounces of basilicon, and two drachms of turpentine, has long been celebrated as a dressing for burns and scalds. Care should be taken to prevent its contact with the sound skin, surrounding the burn or scald; for though a soothing application to the latter, in the surrounding parts, it will be very apt to produce severe inflammation.

KINO.

The kino is an astringent substance, obtained from an African plant. It was long uncertain what plant furnished kino; but it is thought now to be proved that it is the *pterocarpus erinacea*. It is used to check diarrhœa, and for the other purposes for which astringents are employed, in the dose of twenty to thirty grains of the powder, or two drachms of the tincture. One part of powdered kino, to four of alum, forms a styptic powder, which in the dose of from ten to twenty grains, twice a day, is recommended in chronic menorrhagia and the whites.

LAUDANUM.

The tincture of opium, or laudanum, is one of the most manageable forms for administering opium, the narcotic and other virtues of which, render it so essential in the practice of physic. Under the article opium, we have given a very full account of the source from whence it is derived, of its various preparations, of their effects, and the cases in which they are useful; and it will, therefore be necessary to do little more in this place, than to state the doses of laudanum proper to be given on various occasions, and the methods to be pursued when an over-dose has been swallowed.

Uses and doses of laudanum. When we wish to procure sleep, the dose for a grown-up person is from twenty-five to forty drops, taken in a little water, either plain, or sweetened, or in pepper-mint-water, cinnamon-water, gruel, or the like. To allay griping pains in the bowels, from fifteen to twenty drops; but not repeated above once, or at the most, twice, at an interval of half an hour. When there is a harassing, tickling cough, and no inflammatory symptoms forbid its use, ten or twelve drops may be very properly given, and repeated after an hour or two, till the second or third time.

It is to be most particularly noticed, that although we consider it right that every person, especially those who

have the care of families, should know the doses of laudanum which are proper on various occasions, we would urge most strongly, that it should never be given, except in cases of absolute necessity; and if possible, always under the sanction of a medical man; and we would caution parents never to allow it a place in the nursery; nor to put it in the way of servants or others, whose ignorance or rashness might render it productive of the most baneful effects.

Treatment of those who have swallowed an over-dose of laudanum. The primary object is to remove the poison from the stomach. This is proper, even in the rare cases in which vomiting takes place spontaneously. The removal of the poison is to be accomplished in one of three ways; by emetics administered in the usual way, by the stomach-pump, or by the injection of emetics into the veins. By far the best emetic is the sulphate of zinc, in the dose of half a drachm, or two scruples, which may be repeated after a short interval, if the first dose fails to act. In order to insure its action, it is of great use to keep the patient roused as much as possible—a point which is often forgotten. The sulphate of copper is by no means so certain as the sulphate of zinc; besides, as it is a much more virulent poison, it may prove injurious if retained too long in the stomach. Tartar emetic, from the uncertainty of its action when given in considerable doses, is even worse adapted for such cases. Emetics should always be preferred for removing the poison from the stomach, provided the case be not urgent; even then, however, they sometimes fail altogether. The best practice in that case, is to endeavour to remove the poison with the stomach-pump; and this, in urgent cases, should be the first remedy employed.

The last method for removing opium from the stomach is a desperate one. It is the injection of an emetic into the veins. Tartar emetic answers best for this purpose, and its effect is almost certain. A grain is the dose. While

injecting it, care must be taken by the operator not to introduce air into the vein.

The next object in conducting the treatment of poisoning from opium, is to keep the patient constantly roused. This alone is sufficient when the dose is not very large, and the poison has been discharged by vomiting; and in every case, it forms, next to the evacuation of the stomach, the most important part of the treatment. The best method of keeping the patient roused, is to walk him up and down between two men, who must be cautioned against yielding to his importunate intreaties and occasional struggles to get free and rest himself. The duration of the exercise should vary, according to circumstances, from three or six to twelve hours. When he is allowed, at length, to take out his sleep, the attendants must ascertain that it is safe to do so, by rousing him from time to time; and if this should become difficult, he must be turned out of bed again, and exercised as before.

When the opium has been completely removed, the vegetable acids and an infusion of coffee have been found useful in reviving the patient, and subsequently in subduing sickness, vomiting, and head-ache.

LAURO-CERASUS.

The leaves of the cherry-laurel, *prunus lauro-cerasus*, have a flavour resembling that of bitter almonds, or other kernels; and from this circumstance, an infusion of the leaves has been employed to give flavour to custards, puddings, and other articles for the table. But as it is undoubted that the cherry-laurel has poisonous qualities, such dangerous seasoning should never be used. One woman who lost her life by drinking laurel-water, thinking it to be a cordial, in a quarter of an hour after drinking two-thirds of two ounces, complained of a violent disorder in her stomach, soon after lost her speech, and died in about an hour, without vomiting or purging, or any convulsion. By experiments on brute ani-

mals, it appears that this poison is destructive to life, not only when taken into the stomach, but also on being injected into the intestines, or applied externally to different organs of the body. The discoveries of modern chemistry render it probable, that the destructive properties of cherry-laurel water are owing to its containing prussic acid. And after the well authenticated proofs of its deleterious effects, it is to be hoped that it will never find a place in the arrangements of housewifery. As a medicine it has been occasionally employed, but with little or no decided advantage.

LEAD.

Like other metals, lead must be oxidated or combined with an acid, before it will exert any action on the body. When the salts of lead are introduced into the system, their effects are of a very singular and injurious nature, occasioning the severe and painful affection of the bowels, called colica pictorum, or painter's colic. There are a variety of ways in which lead may be introduced into the body, so as to be injurious, viz: by a person being exposed to the fumes of lead, in the various operations performed on that metal; by rum or other spirituous liquors being drunk, that have passed through stills with leaden worms; by eating of preserves or pickles, kept in jars glazed with a preparation of lead, and in some cases, though we should hope rarely, by sugar of lead being employed to adulterate wine. The disease induced by the poison of lead, is characterized by griping, costiveness, sickness, and a wasting of the muscles of the thumbs, and of the calfs of the leg. These symptoms, and the mode of treating them, will be fully detailed under the article painter's colic. Though lead is therefore to be used internally, with great caution, it is an excellent and useful refrigerant when applied externally, as in the form of Goulard's extract, or the solution of sugar of lead. This last preparation has even been used internally in many diseases

and, in the hopeless diarrhœa of consumption, it seems, when combined with opium, in the proportion of two grains of sugar of lead, to one of opium, to check it a little, though it cannot cure it.

ACETATE OF LEAD.

Sugar of lead. The compound of acetic acid and lead, so called from its sweet taste. It is of great use as an external application in inflammations, bruises and diseases of the skin. It is generally applied in solution by means of cloths soaked in it, or mixed with crumbs of bread. A drachm to five ounces of water is a strong solution, and with double that quantity of water, a weak one. A little vinegar should be added, if the water be not quite pure. It is thought that the value of the applications of lead in common inflammation, arises from a partial palsy of the nerves of the part, produced by the sedative power of the lead. It should not be applied to recent wounds nor to ulcers, where there is much debility, or any tendency to gangrene. Though the internal use of the salts of lead is a circumstance attended with considerable danger, yet, under careful management, the acetate of lead given internally, has been found a very valuable and manageable remedy, especially in hæmorrhages from the lungs and uterus, and from the bowels. The diarrhœa which attends the closing stage of consumption, has been greatly mitigated by its use. The dose is from one to two grains joined with half a grain of opium; and it is recommended that nothing but a little cold water, or vinegar and water, be swallowed for at least an hour after the pill is taken; in dysentery, also, after bleeding, a prescription composed of one or two grains of sugar of lead, one of ipecacuanha, and one third of a grain of opium, every three hours, has been used with great benefit. In some cases of obstinate vomiting, a grain of sugar of lead, made into a pill with conserve of roses, and repeated every two hours, has been found to

produce very speedy relief. Sugar of lead with lard, forms an excellent cooling ointment.

LENITIVE ELECTUARY.

This is a very gentle and agreeable laxative in cases of simple costiveness. It is made by rubbing together in a mortar an ounce of senna leaves, and half an ounce of coriander seeds; then sifting ten ounces of the powder through a sieve. The remainder, with the addition of three drachms of liquorice root, and two ounces of figs, is to be boiled in half a pint of water, until the whole is reduced to one-half. The liquor being pressed out and strained, is to be evaporated to one gill, and to this is to be added four ounces of sugar, and a syrup made in the usual manner; one ounce of the pulp of prunes, the same quantity of tamarinds, and of purging senna being well mixed together in a mortar, are to be added to the syrup, and the whole well combined with the sifted powder. The dose is a portion of the size of a nutmeg, or a dessert-spoonful.

LETTUCE.

The leaves of the lettuce are generally eaten like other herbs, in the form of a salad, dressed with oil and vinegar. Lettuce contains a narcotic principle; and those who use it, with a view to procure sleep, should not use vinegar with it, as vinegar counteracts its soporific power. Lettuce has lately been brought into notice as an article of the materia medica, by its affording an extract having some of the properties of opium; and capable, in some cases, of being substituted for it. This extract is called *lactucarium*, or lettuce-opium, and its dose is from three to five grains, and of the tincture from fifty to eighty drops. It is thought to have the anodyne, without the constipating effects of opium.

LIME-WATER.

Lime is soluble in water, though it takes a great quantity to dissolve it; and this solution is called lime-water,

and has been a good deal employed in the cure of diseases. It has been used in various symptoms of indigestion, as in acidity combined with looseness, and in calculous complaints. The quantity taken may be from a pint to two pints daily. In the complaints of infants, connected with disordered bowels, lime-water, mixed with an equal quantity of milk, may be given in doses of a tea-spoonful three or four times a day. Lime-water has great effect in dissolving the slimy mucus, with which disordered bowels are infested. It is on this principle that it has been used against the stone, with the view of dissolving the animal mucus which cements the parts of the concretion together. Equal parts of lime-water and linseed oil, is an excellent application to burns.

LIQUORICE.

Liquorice is the root of the *glycyrrhiza glabra*, a plant growing in Spain, which yields a great quantity of a very sweet substance. It is the latter, when extracted and rendered solid by evaporation, which is generally called liquorice: it is advantageously employed both to sweeten nauseous drugs, and by itself as a good demulcent. As such, it is much used in coughs, colds, and other affections of the wind-pipe and lungs; and when formed into lozenges of a convenient size, containing each about the sixth part of a grain of opium, it forms a very soothing application to the throat and larynx. These lozenges may be given to the extent of six or eight in the day. They are known by the name of troches of liquorice, with opium.

LISBON DIET-DRINK.

This is a decoction of various plants, that was at one time much employed in the cure of syphilis, and for the strengthening of the constitution, after a course of mercury. The plants used were sarsaparilla, sassafras, guaiac, liquorice, and mezereon. What is called in the pharmacopœias, the compound

decoction of sarsaparilla, is now commonly prescribed instead of the Lisbon diet-drink.

LOGWOOD.

The wood of the *hamatrylum campechianum*, or logwood, has a sweet astringent taste, and a decoction made from it is esteemed an excellent remedy in protracted diarrhœa, and in the last stage of dysentery. Its powers are, however, very trifling. We possess numerous other astringents in nearly all respects preferable to this.

LUNAR CAUSTIC.

Nitrate of silver, or lunar caustic, is formed by dissolving silver in nitric acid, evaporating the solution to the consistence of oil, and then pouring it into iron tubes, greased on their inside with tallow. When the cylinders of nitrate of silver are cooled, they have a dark gray colour, and when broken across, present a crystalline structure. The taste of nitrate of silver is very bitter, harsh, and metallic. It tinges the skin black, and is one of the most active and manageable caustics we possess; it is employed to remove fungous growths, the callous edges of sores, strictures in the urethra, and the like. It is employed frequently to tinge the hair black, and it forms the basis of indelible marking ink. A solution of it is applied to indolent ulcers and fistulous sores, and has appeared to do much good in ringworm. It is also used as a wash in certain stages of chronic ophthalmia, and in putrid sore throat. A strong solution has been injected into the urethra in gonorrhœa, but this is a practice by no means to be followed. The nitrate of silver has been given internally for the cure of epilepsy, but it has not been attended with very general or remarkable success. The dose, at first, is the eighth of a grain, increased gradually to one grain. Several cases are recorded, where the colour of the skin was altered to a dark hue, by long continuance of the internal use of this article.

MAGNESIA.

Magnesia is a species of earth, of great benefit in correcting acidity of the stomach. It is of the class of what are called alkaline earths; and having an affinity for acids, it attracts to itself whatever acid it finds in the stomach, and forming with it a purgative salt, it produces several easy motions of the bowels, and so removes the acidity, heartburn, and other unpleasant symptoms. Magnesia may be taken to the extent of a tea-spoonful twice or thrice a day, according to the urgency of the symptoms; and it may be mixed with water, or peppermint water, or any similar fluid, to diminish its insipidity. Magnesia, may be safely and usefully given to children, even when very young, mixed with their panado, or thin gruel. The best magnesia is what is called burnt or calcined magnesia. Magnesia is either found in nature, combined with the carbonic acid, or it is obtained in that combination in the process of preparing it from Epsom salt, which is composed of magnesia, combined with sulphuric acid. This carbonate of magnesia answers the purpose of correcting acidity, and is cheaper than the calcined; but in some cases, may be disadvantageous, on account of there being an escape of carbonic acid, which gives rise to flatulency in the stomach and bowels. By exposing the carbonate of magnesia to a strong heat for a proper length of time, the carbonic acid is driven off, and the pure magnesia remains, which is then termed pure, calcined, or burnt magnesia. Double the quantity of the carbonate is required to produce the same effect as of the calcined magnesia.

MAGNOLIA.

The bark of all the species of the magnolia possesses tonic and astringent properties, which render it a valuable remedy in nearly all the diseases in which the Peruvian bark is indicated. By most physicians, it is esteemed, however, inferior to the bark of the dogwood.

MANNA.

Manna is the concretic juice of an ash growing in Sicily, and the southern parts of Europe. A similar juice may be obtained from the larch tree. It contains a considerable amount of saccharine matter, mucilage, and aroma. It is merely employed as a gentle laxative for children, or weak persons; its action upon the bowels is, however, so trifling that it will scarcely ever act without the addition of some other article. It is a well-known addition to the senna tea; its place here may be advantageously supplied, however, by common brown sugar, or the pulp of tamarinds. For use, the whitest, lightest, purest, and driest manna, and that which has a crystalline appearance when broken; a sweet taste, and rather biting to the tongue, is to be preferred. This is called *flake manna*, to distinguish it from the common sort.

MARSH MALLOW.

The leaves and root of the *althæa*, or marsh mallow, are employed in decoction as an emollient and demulcent, in affections of the lungs, alimentary canal, and urinary organs. Externally, the leaves and root are applied as a fomentation or poultice.

MAY APPLE.

The *podophyllum peltatum*, or May apple, is a very common plant in most parts of the United States. The fruit is eaten, and, by many persons, esteemed delicious. The leaves are poisonous. The root, dried and powdered, in doses of from fifteen to twenty grains, acts as a very certain purgative. It may be employed in conjunction with calomel, crystals of tartar, or cream of tartar, in all those cases in which jalap by itself or in combination is directed.

MERCURY.

Mercury is a fluid metal, of great importance in the arts, in chemistry and in the Materia Medica. It fur

nishes a variety of medicines of the most active kind, which are employed with success in a great number of dangerous and common diseases. The conspicuous effect of mercury, when introduced into the system, is to increase the flow of saliva; and when this effect is produced, or when the glands which secrete the saliva are evidently affected, we judge the mercury to have pervaded the whole system, producing a change on the whole of its fluids, as well as on the nervous and muscular systems.

Mercury, method of introducing. The modes of introducing mercury into the body, so as to produce its peculiar effect, are various. Like all other metals, it is inert in the metallic state, and requires to undergo various preparations to fit it for acting upon the animal economy. If mercury be thoroughly mixed with conserve of roses, equal parts of each being employed, the globules disappear, and the metal is probably converted into an oxide; and by the addition of a little starch and water, is fit for internal use; it is made up into pills, known by the name of the blue pills, each containing a grain of mercury. These pills are given to the extent of two in the day; or four, two at night and two in the morning, provided they have not too great a purgative effect on the bowels; and if this should take place, it must be counteracted by opium. Another way of introducing mercury into the system so as to produce its specific effect, is to give calomel, or the submuriate of mercury, preventing its purgative effect either by diminishing the dose, or by combining it with opium. It is more than suspected, that many of the nostrums which are said to cure some diseases where mercury is useful, without any of that mineral, contain a portion of the oxymuriate, or corrosive sublimate, as this, from its activity in a small bulk, is easily disguised. Mercury may also be introduced into the system by rubbing it on the skin. The ointment for this purpose is made by combining inti-

mately the mercury with some unctuous body, generally mutton suet and lard, till the globules disappear, using one part of mercury to four of the fat; and rubbing upon some convenient part of the body, a piece about the size of a hazel-nut, morning and evening. It is generally directed to be rubbed in upon the inside of the thigh, till it almost completely disappears; and to prevent chafing and eruptions, the hair should be shaved, and one thigh rubbed at alternate times. It has sometimes been thought of consequence to introduce mercury into the system with great rapidity; and this is done by burning cinnabar, which is a combination of sulphur and mercury, and exposing the patient to receive the vapour, both by the skin and by the lungs.

Mercury, effects of. By whatever method mercury is introduced into the system, its effects are those of a strong and general stimulant: it increases the activity of the circulation, and brings on a degree of feverishness; it increases the quantity of all the secretions, and especially that of the saliva, producing an evident enlargement of the glands that open into the mouth, and when it has been pushed too far, occasioning very painful swellings and ulcerations, or even mortification of the mouth and fauces. The breath acquires a peculiar fetid smell, the flow of saliva is exceedingly increased, and a very restless and uncomfortable feeling is produced in the body. Sometimes an eruption takes place on the skin, of a very painful description, in which case the greatest attention must be directed to avoid all irritation, to keep the patient in a cool but dry air, to give mild laxative medicines, and to use the sulphuric acid. In some constitutions, mercury suddenly produces very pernicious effects. There ensue, from a very small quantity of the medicine, great depression of strength, anxiety about the chest, frequent sighing, trembling, and small quick pulse, vomiting, paleness of the countenance, and such debility that a very small

exertion of muscular strength is sometimes suddenly fatal. In such cases, all farther administration of the mercury is to be suspended, the patient is to be exposed to a cool and free air, tonic medicines are to be given, with light but nourishing diet; and if the disease for which the mercury was given, be still present, its use must afterwards be resumed with the utmost caution, that we may judge whether it be safe to go on with it, or to change our plan of cure altogether.

Mercury, use of, in Syphilis. So many active medicinal preparations are furnished by mercury, and their combinations are capable of effecting so many different purposes, that there are few diseases in which it may not be employed; but we do not mean here to speak of any of its preparations or effects as purgative, diuretic, diaphoretic, &c., but only of those peculiar to itself, and which are known by their effects on the salivary glands and their secretions. The most remarkable and celebrated instance in which mercury has been used, is in the cure of the venereal disease. Very soon after the introduction of this disease, when the nations of Europe were filled with horror at its rapidly destructive progress, several persons afflicted with it, happened at the same time to be using mercury for diseases of the skin, in which complaints it had been employed by the chemical physicians; and finding they were cured of the syphilitic ailments while under the influence of mercury, physicians were induced to try that active mineral for the cure of syphilis, in which it succeeded to their utmost expectation. For above three hundred years, experience has uniformly attested the almost unvarying success with which mercury has been attended in this disease, with the exceptions which may be looked for in every disease and every remedy, from the ever-varying peculiarities of the human constitution in different men, and in the same individual at different times.

Profuse salivation not necessary. Mercury has been too often rashly and

superfluously employed in the cure of syphilis; such quantities being thrown into the system as to produce the most lamentable effects; in short, it has too often been managed so as to become a poison instead of a remedy. A mercurial course, as it was formerly called, was a terrible thing, both in its preparation and continuance, and too frequently left the constitution shattered beyond recovery. To procure all the salutary effects of mercury, it is not necessary to throw in so much as to occasion the wasting salivations formerly in use, but merely to keep the mouth tender for the proper period, as an indication that the system is under its influence; and we judge of the length of time during which we are to continue this, by the effects produced on the disease for which we are giving it. The great tenderness of the mouth and of all the neighbouring glands, renders them peculiarly liable to be affected by cold, during the use of mercury; and we should therefore be on our guard against exposure to cold, lest the glands should be seized with severe inflammation and swelling; but this precaution and fear are carried too far by the common people, who are afraid to take a calomel purge lest they should be injured by being exposed to cold. When the mouth is very sore from mercury, and profuse salivation, much ulceration, general fever and irritation have unfortunately been produced, the best treatment is to give saline purges, or castor oil, with a solution of borax as a gargle for the mouth; and if it be deemed advisable still to keep the system under the influence of mercury, it is to be given in moderate doses when the mouth is beginning to heal, and so continue it till our purpose is attained.

In chronic diseases of the liver, mercury has been employed; and, indeed, in the tumefaction and hardness of that organ, it is the only remedy we can depend upon. In dropsy, a course of mercury is frequently an excellent plan of cure. In chronic dysentery, it has been sometimes found advantageous to bring the system under the influence

of mercury. In certain obscure and unexplained cases of bad health, what is called an alterative course of medicine, is often a good way of inducing a better action in the system; and mercury, cautiously given, is unquestionably one of the best alteratives. It has, perhaps, been too indiscriminately used as such; but in proper cases, and when not pushed too far, it is of essential benefit.

MEZEREON.

The mezereon is a plant cultivated in gardens for its flower. The bark of the root has a sweetish taste, and when chewed, it occasions a sensation of burning in the mouth and throat. The fresh bark contains an acrid sap, which irritates the skin. Mezereon root was formerly used in the Lisbon diet-drink, and has some reputation for curing nodes and some other venereal symptoms which had resisted the use of mercury. It is now very little esteemed in medicine. The berries of the mezereon are very acrid, and have produced fatal effects on children who have been tempted by their beauty to eat them. When it is discovered in time that they have done so, an emetic should be given immediately, followed by copious diluent and demulcent drinks.

MINERAL WATERS.

The waters of certain springs, by running over some mineral substances in their course, become impregnated with the taste, smell, and other properties of these latter, and are therefore rendered, in the cure of diseases, serviceable in a certain degree. The most celebrated mineral waters are classed according to their temperature, the substances which they contain, or their effects upon the system, into the cold, hot, sulphurous, chalybeate, saline, acidulous, and purgative. Some of these act as tonics, some promote the secretions of the liver and alimentary canal; some excite the healthy action of the skin, &c. Mineral waters are not only used internally, but

also as a bath externally. The principal circumstances under which they are directed, are for the removal of chronic diseases of the internal organs, chronic affections of the skin, and during convalescence from nearly all diseases. Their most beneficial effects are displayed, when they are resorted to in that condition of health vaguely termed nervous. As these complaints generally arise from the want of a due amount of active exercise and from various improprieties in the regimen and diet, and are almost invariably connected with indigestion, depression of spirits, flatulence, costiveness, obesity, and all the numerous uncomfortable and alarming feelings which originate from such affections; persons labouring under them are benefited by a visit to some appropriate watering place; not so much by the remedial powers of the waters they drink, though these are often decidedly beneficial, as by the journey, the change of scene, the pure air they breathe, the exercise they are induced to take daily, the agreeable occupation of their minds, and other circumstances connected with their visit, by which the equal and vigorous circulation of their blood is increased, and the tone and regular action of all the organs of the body are promoted. When at the same time a proper regulation of diet is entered upon, and early rising and retiring constantly observed, a complete renovation of the health is often obtained, under circumstances apparently the most desperate.

MORPHIA.

Morphia is a chemical principle contained in opium, and which possesses nearly all the properties of the latter, without its nauseous taste and other objectionable qualities. It is sparingly soluble. It unites with the acetic, sulphuric, and hydrochloric acids. It is the sulphate of morphia which is principally employed as a medicine: dose, from a fourth to a third of a grain. To induce sleep, or abate pain, in cases where anodynes are proper, either of the following prescriptions may be used.

Syrup of morphia. Acetated syrup of morphia, four grains, and clarified syrup, one pint, well mixed together. Dose, a dessert-spoonful for an adult.

Syrup of sulphate of morphia. Sulphate of morphia, four grains, clarified syrup, one pint, well mixed together. Dose, two tea-spoonfuls for an adult.

Anodyne drops. Take acetate of morphia, sixteen grains, distilled water, one ounce, acetic acid, three or four drops, and alcohol one drachm. Dose, thirty or forty drops for an adult.

MUSK.

Musk is a very fragrant substance, obtained from an animal of the deer tribe, which inhabits the inland parts of Asia. Musk had at one time great reputation as an antispasmodic, a stimulant, and cordial; and, as such, was employed in various nervous diseases, and in the last stages of typhus fever and other diseases accompanied with debility. The dose is from five to ten grains. It may put an end to spasms by its strong and fragrant odour, and furnish a little stimulus, alone or combined with other medicines; but it has no particular virtues worth its high price and the trouble of procuring it genuine; and the physician has so many more powerful drugs to answer the purpose which musk has been thought good for, that he may, without regret, allow the perfumer the entire monopoly of this costly substance.

MUSTARD.

Mustard is obtained from a plant of the class *tetradynamia*. The seeds, when bruised, form a powder of a pungent smell, and acrid taste; this, when mixed with water, is used as a seasoning with our food, and when taken in considerable quantity it proves an emetic; hence it is often useful in domestic practice, to evacuate the stomach, when any poisonous substance has been swallowed. Another useful purpose to which we apply mustard, is to act as a kind of blister, to stimulate the skin for the cure of internal diseases in a manner

quick and effectual, without the tedious waiting, and the destruction of the outer skin, which follow the application of common blisters. To use it in this way, equal parts of table mustard and crumb of bread may be mixed with vinegar and water, and applied to the place till the patient feels it becoming hot and itchy, which will generally be in about a quarter of an hour or twenty minutes. Mustard poultices are also applied to the feet, to quiet delirium and remove the tendency of blood to the head, and to act as a stimulant when the powers of life seem much diminished in their energy. Such applications are called *sinapisms*.

The seeds of the white mustard taken whole, have been long used in a variety of complaints, and some persons have been very sanguine as to their powers in a great many more. They have been given as a stimulant to the stomach, and to the system in general, in cases of palsy. They act as a tonic and mild laxative; probably very much from their mechanical effects, as, like other seeds, they pass through the intestines unchanged; the outer covering being merely somewhat softened, and parting with a quantity of mucilage. Mustard-seed is certainly very harmless, and may be tried in various diseases of debility and indigestion. It may be taken to the extent of a tea-spoonful three times a day, in a little milk, gruel, or water. It is to be swallowed whole, and not broken or masticated.

MYRRH.

Myrrh is a gum resin obtained from a plant not yet described. The best myrrh is brought from Abyssinia, but it is also produced on the east coast of Arabia Felix, whence it comes to us by the East Indies. Myrrh is a heating and stimulant medicine. It sometimes occasions a perspiration, and it is supposed to be beneficial in diseases of the uterine system. It may be given in powder, or made into pills, in doses of from ten to forty grains; or in the form of tincture, in the dose of one or two

drachms; but it must not be given in water, as it will not continue in solution in that fluid; it should be given, therefore, in milk or mucilage. The tincture is a good addition to some gargles, and is also a favourite application to the teeth. Myrrh when combined with aloes, forms a good tonic, as in the pills called pills of aloes with myrrh, of which the dose is from two to four pills taken at bed-time. A mixture with some myrrh in it, called Griffith's myrrh mixture, had at one time great reputation in the cure of consumption, but it has not maintained its ground. Some object to it as not founded on chemical principles, but Dr. Paris thinks it affords an instance of a valuable composition of drugs which experience has ascertained to be of great value, though theory would lead us to reject it. He thinks the compound mixture of iron of the London Pharmacopœia is nearly the same as the anti-hectic mixture of Dr. Griffith, and that it is permanently serviceable in chlorosis, and the numerous sympathetic affections connected with it. In the painful swellings which infest the breasts of chlorotic young women, it has been found almost a specific. The dose is from one to two ounces.

NEUTRAL MIXTURE.

This mixture is one of the most agreeable, mild diaphoretics we possess, in cases of fever. It is made from recent lime-juice, one ounce and a half saturated with subcarbonate of potass, with the addition of a drachm or two of white sugar, and three ounces of pure water, or mint-water. The dose is a table-spoonful every two or three hours. Its powers are decidedly augmented by the addition of a grain of tartar emetic; or when this is not thought advisable, by adding a drachm or two of sweet spirits of nitre.

NITRATE OF POTASS.

The nitrate of potass, nitre or salt-petre, is a salt of a cooling, refrigerant, and diuretic quality. It forms a very safe and excellent addition to drinks in fe-

verish cases, in the dose of twenty to thirty grains to the pint of water; or the quantity may be a little increased, and so given as a diuretic, dissolved in a considerable quantity of water. Or it may be given in doses of three or four grains four times a day, and assisted by large draughts of toast water, or barley water, linseed tea, and the like. Sometimes an ounce or more of this salt has been given by mistake for some purgative salt, and the effects have been very dreadful. Severe griping, bloody stools, vomiting, and death have ensued. The best way to counteract this, is to give carbonate of soda in large quantities of fat mutton broth, or to give a dose of castor oil, followed up by copious draughts of gruel. Opium and aromatics are also to be given.

NUX VOMICA.

The nux vomica is a flat roundish seed or kernel, about an inch broad and a quarter of an inch thick, the produce of a large tree in the East Indies, the *strychnus nux vomica*. These seeds contain a virulent poison, which, according to the French physiologist, Magendie, seems to exert its influence on the spinal marrow, without directly involving the functions of the brain. The symptoms produced, are great anxiety, convulsions, paralytic symptoms, retching, and increased action of the heart and lungs. Nux vomica has been said to produce benefit in the plague; the German writers also strongly recommend it in mania, epilepsy, and hydrophobia, as well as in chronic rheumatism, gout, scrofula, syphilis, and cutaneous eruptions. In the French hospitals it has been employed beneficially, in cases of palsy. The dose is four or five grains of the powder, in pills, during the day.

The French chemists have discovered in this substance, a peculiar proximate principle, to which its virulence is owing. This they have called *strychnia*. It is highly alkaline, and so powerful as even to be perceptible when a grain is dissolved in eighty pounds of water. In doses of half a grain, it

occasions serious effects, and in larger ones, convulsions and death. It is perhaps the most powerful, and next to prussic acid, the most rapid of poisons. It has been given in epilepsy and palsy, in doses of one-twelfth of a grain, but it is a most dangerous remedy.

OAK BARK.

The bark of the oak contains a great deal of a very astringent matter, which renders it valuable as an ingredient in various gargles; and also in moderate doses internally, when astringents are necessary, as in obstinate diarrhœas. The infusion or decoction of oak bark is also used for the same purpose in the way of clyster.

OLIVE OIL.

Olive or sweet oil is prepared from the fruit of the olive, when fully ripe, by pressing it gently; it then yields the purest oil, but an inferior kind is procured by heating the remainder, and squeezing the fruit more strongly. Olive oil enters largely into the diet of many nations, and is much used in medicine and pharmacy. When good, it is of a pale yellow colour, of a bland taste, and without smell; when long kept, it becomes rancid. When taken internally, it acts as a mild laxative, but not many stomachs can retain enough for this purpose. It is sometimes given in pretty large doses for the expulsion of worms, particularly some kinds of *tænia*, or tape-worm. And it may also be given internally in small doses, with mucilage and other additions, as an emulsion in cases of catarrh and sore throat. In instances where certain acrid or caustic poisons have been swallowed, large quantities of oil are given, to correct their acrimony. When applied externally, it acts as an emollient, and forms a good medium for frictions which are designed to promote absorption, and to discuss indolent swellings. Warm oil rubbed on the belly, gives much relief in dysentery and other abdominal complaints; and the same application is one of the best means for dispersing the knots in the breasts

of lying-in women, in the first days of their confinement. Olive oil is an ingredient in many plasters and ointments. Combined with hartshorn, it forms the volatile liniment, so useful as an external stimulant. Some have said that anointing the body with oil prevents a person from receiving the infection of the plague.

OPIUM.

Opium is a medicine of inestimable value, and indispensable for the successful practice of physic. Speaking generally, we may say it is a narcotic medicine, but it may be so managed as to procure various other salutary effects in a great variety of diseases. Opium is obtained from the white poppy; *papaver somniferum*; and is chiefly prepared in Turkey, Persia, and India. The plant grows also in many parts of Europe, but the opium obtained in the places first mentioned, is what is chiefly valued in medicine. Opium is procured in the following manner: when the seed capsules are about half grown, two or three longitudinal incisions are made at sunset in each capsule, but so as not to reach the internal cavity; a juice exudes, which is removed as fast as it concretes; this is put into earthen pots, and afterwards dried in the sun. Opium should be of a rich brown colour, a tough consistency, and rather smooth and uniform in its texture. Its heavy narcotic smell should be strong, and free from all mustiness; and there should be no burnt odour. Its taste is bitter, and a little acrid. Opium has been produced in England, of a very good quality; but the moist and changeable nature of the climate renders it impossible to procure it good and abundant enough, to supply the demand for it. In this country, however, the poppy might, no doubt, be cultivated successfully, so as to obtain from it opium of the best quality.

Opium, preparations of. The principal forms in which opium is used, or prepared for combination with other substances, are the *crude opium*, and the *tincture*, which is made with proof

spirit, commonly called *laudanum*. The *wine of opium* is a vinous solution of the extract, combined with various aromatics. The dose is the same as that of the tincture. It is sometimes locally applied to the eye, when the vessels remain turgid after active inflammation has been subdued; two or three drops are dropped into the eye, night and morning.

Chemists have discovered in opium, among other substances, a peculiar alkaline body, to which the soporific virtues of the drug are owing; and which has received the name of *morphia*, from Morpheus, the god of sleep.

There is one other preparation of opium which deserves to be mentioned; the *black drop*. This preparation has been long known and esteemed, as being more powerful in its operation, and less distressing in its effects, than the tincture of opium. The manner of preparing it is this. Take half a pound of opium sliced, three pints of good verjuice, (juice of the wild crab) and one and a half ounce of saffron. Boil them to a proper thickness, then add a quarter of a pound of sugar, and two spoonfuls of yeast. Set the whole in a warm place, near the fire, for six or eight weeks, then place it in the open air until it becomes a syrup; lastly, decant, filter, and bottle it up, adding a little sugar to each bottle. One drop of this preparation is considered equal to about three of the tincture of opium; it is probable that an acetate of morphia is formed.

Opium, effects of. The effects of opium on the human body are those of a narcotic, anodyne, or sedative. Some medical writers assert its powers to be stimulant; others as strenuously maintain that they are exclusively sedative. The truth is, that by diminishing the quantity of opium taken at one time, it may be made to produce a stimulant or at least an intoxicating effect; and it is on this principle we are to explain the fondness of the Turks, and other eastern nations, for opium, who being, by the religion of Mahomet, precluded from the use of wine, are glad to seek

in the consumption of opium, a medium of inspiring courage, dissipating care, and producing all the effects of intoxication. By this, also, we are to account for the lamentably increased use of opium among many persons, particularly females, in this country; who, cheap as ardent spirits unhappily are, find the excitement and dozing produced by opium, even more cheap and more pleasant.

The symptoms and mode of action of opium have been long made the subject of dispute, both among physicians and toxicologists; and in some particulars our knowledge is still vague and insufficient. The effects of opium, through whatever channel it may produce them, are exerted chiefly on the brain and nervous system. The effect of a small dose seems to be generally in the first instance stimulating. The action of the heart and arteries is increased, and a slight sense of fullness is caused in the head. This stimulus differs much in different individuals. By repeating doses of thirty to a hundred drops when the usual torpor is coming on, the stimulus may be kept up for a considerable time in some people. In this way are produced the remarkable effects said to be experienced by opium eaters. These effects are always in the first instance, stimulant, the imagination being rendered brilliant, the passions exalted, and the muscular force increased, and this state endures a considerable time before the usual state of collapse supervenes. A very poetical, but we believe also, a very faithful picture of the phenomena now alluded to, is given in the Confessions of an English Opium Eater; a work published not long ago, by a gentleman who writes from personal experience. It is singular that our profession should have observed those phenomena so little, as to be accused by the author of having wholly misrepresented the action of the most common drug in medical practice. In reply to this charge, the physician may simply observe, that he seldom administers opium in the way practised by the opium eater; that

when given in the usual therapeutic mode, it rarely causes material excitement; that some professional persons prefer giving it in frequent small doses, with the view of procuring the sedative effect with greater certainty, and undoubtedly do succeed often in attaining their object; that in both of these medicinal ways of administering it, excitement is occasionally produced to a very great degree, and of a very disagreeable kind; but the latter phenomena have been clearly traced to idiosyncrasy; and, therefore, the effects on opium eaters are probably owing either to the same cause, or to the modifying power of habit. This much at all events is certain, that opium seldom produces a material excitement in a single small dose; and does not always cause continuous excitement, when taken after the manner of the opium eaters. The effect of a full medicinal dose of three grains of solid opium, or a drachm of the tincture, is to produce in general a transient excitement and fullness of the pulse; but in a short time afterwards torpor and sleep, commonly succeeded, in six, eight, or ten hours, by head-ache, nausea, and dry tongue.

Opium, uses of. Neglecting all the disputes and theories which have had their day, we proceed to mention the purposes for which opium is employed in the practice of physic, and to enumerate a few of the diseases, or other states of the system, in which it may be given. By combination, the medical powers of opium are wonderfully extended, so that there is scarcely a disease in which it may not, during some of its stages, be rendered useful. Opium is very generally given when we wish to procure sleep. Its dose for this purpose is from twenty-five to forty drops of laudanum, or ten of the black drop, given in water either plain or sweetened with syrup, or flavoured with cinnamon; or one grain of crude opium, alone or joined with liquorice and pepper, as in the Edinburgh formula. It is frequently prescribed to procure rest in certain stages of fever, in agues, in burns, in small-pox, in

dyspepsia, and in a great variety of cases of watchfulness and irritation; taking care that it be not administered, or at least very cautiously, when there is fullness of the system, an inflammatory state of the body, costiveness, or a tendency of the blood to particular organs. Opium is much employed to mitigate pain, and there is no substance whatever, which has such extensive and never-failing powers as this. As an anodyne, it is employed in griping of the bowels, in cramps, in gall-stones, jaundice, dysentery, and diarrhoea; and in the pain from wounds, fractures, burns, and poisons, and even in some inflammations, provided we have premised proper blood-letting. Opium is given to check immoderate discharges in diarrhoea, in dysentery, in cholera, in water-brash. It is used to allay inordinate action, and so to act as an antispasmodic in convulsions, in tetanus, in asthma, in hysterics, in colic, and as a relaxant, it is used with other means in the attempt to relieve the urgent symptoms of strangulated hernia. Opium may be absorbed from the surfaces of sores, and so exert its peculiar powers on the system.

Opium, disadvantages of. With all its excellencies, opium has some properties, which require to be watched and corrected. When continued too long, it is apt to induce costiveness, a flow of blood to the head, and dyspeptic symptoms. These are to be counteracted by proper laxatives, or by discontinuing the medicine, or substituting some other substance, which will answer the purpose as nearly as possible. Thus, henbane will sometimes answer the purpose of opium in procuring sleep, but its dose is larger, and it is more uncertain. It is very dangerous to get a habit of taking opium, as its effects on the moral character are of the most pernicious tendency; and on the body, a complete destruction of its powers is too frequently induced. All the symptoms of the worst dyspepsia, hollow sunken eyes, tremors of the whole body, a vacant look, and exhausted strength, characterize the hard-

ened opium-taker. Medical men should consider it strictly as a medicine for the removal of certain symptoms of disease, and never give it merely to increase the comfortable sensations of their patients.

With some persons, opium does not produce sleep, but induces a mild and pleasing delirium, in which unreal objects are vividly pictured to the mind's eye. With others, the delirium presents nothing but scenes and figures of terror and impending danger, as rocks ready to fall, or torrents about to overwhelm them.

Opium, as Mr. Brande very properly observes, if ever administered to children, requires to be given with more than ordinary caution; it should never be resorted to in any form, except upon emergencies; and all opiates, especially syrup of poppies and the nostrums containing opium, which are but too frequently used to quiet children, should be imperiously excluded from the list of nursery medicines.

Opium, in combination with other substances. There are several most useful medicines, in the composition of which opium is the principal ingredient. As an external application for allaying pain, the tincture of soap and opium is an excellent remedy. To allay irritation in coughs and other diseases of the chest, when all fear of inflammation is gone, the medicine known by the name of paregoric elixir is given with advantage. A narcotic medicine combined with an emetic is found to make one of the most effectual sudorifics, and not a more powerful and certain sweating medicine can be contrived, than that which is known by the name of Dover's powder, which consists of one part of opium and one of ipecacuanha, joined with eight parts of an innoxious neutral salt to aid their mechanical division and intimate union; of this powder, ten or twelve grains are to be given, and the perspiration is to be promoted by drinking warm gruel or other diluent liquors, but not immediately after the powder, for fear of exciting vomiting. A liquid sudori-

fic may be made of twenty-five drops of laudanum and thirty drops of ipecacuanha or antimonial wine; but if there be inflammatory symptoms or much fever present, opium must be avoided, and other sudorifics employed. Opium with prepared chalk, is given to check diarrhœa. Twenty-five drops of laudanum with half a drachm of ether, will often relieve spasmodic asthma.

Opium, effects of an over-dose of.

By mistake or design, opium is sometimes swallowed in such a quantity as to produce very alarming effects. The principal of these are giddiness, a bloated and flushed appearance of the face, a slow full pulse, and oppressed breathing, as in apoplexy. There are also troublesome dreams, startings or convulsions, cold sweats, vomiting, hiccup, and fainting; deep sleep, terminating in death. As soon as this accident has been discovered, the stomach should be emptied by the stomach-pump, or by a speedy emetic, as thirty grains of the sulphate of zinc, or eight of the sulphate of copper, dissolved in three or four ounces of warm water; and its operation is to be assisted by drinking chamomile tea. When the stomach is evacuated, drowsiness must be prevented by keeping the patient in continual motion; strong coffee has been found to diminish the head-ache and stupor; and bleeding, especially from the jugular vein, should be resorted to, for the purpose of relieving the apoplectic symptoms. After this, ammonia and other stimulants are to be tried. If the patient cannot swallow; or if the emetics do not empty the stomach; if the pupils are dilated, the breathing stertorous, and the system in a state of torpor from which it can not be roused, there is every reason to fear that death will be the consequence of the poison. In all cases of poisoning with opium, dashing cold water over the face, head and shoulders, is a powerful remedy.

The ordinary duration of a fatal case of poisoning with opium, is from seven to twelve hours. Most people

recover who outlive twelve hours. The dose of opium requisite to cause death, has not been determined; it is very much altered by habit. They who have been accustomed to eat opium, are obliged gradually to increase the dose, otherwise its usual effects are not produced.

OPODELDOC.

This is a substance used for external application to bruises and pained parts. The tincture of soap and opium is as good a one as can be used. Steer's opodeldoc is made of castile soap, rectified spirit, camphor, oil of rosemary, oil of origanum, and solution of ammonia.

OXYGEN.

Oxygen is a substance of such general and important operation, that though it strictly belongs to chemistry, we may be allowed to say a little of it here. Oxygen gas, or vital air, is one of the component parts of our atmosphere, of which it forms about twenty-one parts in the hundred. It is that part of the air by which it is rendered fit for the breathing of animals, and for the combustion of burning bodies; in oxygen gas, inflammable bodies burn with great brilliancy. Oxygen enters into combination with a very great variety of bodies; with several combustible bodies it forms acids; with two metals it forms the two fixed alkalies, and with the majority of metals, it forms oxides, or earthy-looking substances, which combination is necessary, before these metals can unite with acids, to form the metallic salts. Oxygen entering into combination with hydrogen, or inflammable air, forms water.

OXYMEL.

Oxymel is vinegar and honey boiled together to the consistence of syrup. It is used as an aperient and expectorant, and is given as such, in asthma, and other diseases of the chest. The dose is one or two drachms, and it may be added to any diluent fluid, or to tepid water.

Oxymel of squills is made by boiling honey and vinegar of squills, instead of common vinegar, and has virtues of the same kind as the squill, but higher in degree. If given in too great quantity, it will prove emetic. To prevent its having any nauseating effect, it may be given with a little cinnamon water; or a little ginger or nutmeg may be sprinkled in the draught.

PARSLEY.

A decoction or infusion made from the recent roots of the common parsley, (*apium petroselinum*,) is strongly recommended as a valuable diuretic in dropsies, and affections of the urinary organs. It is at least a useful auxiliary to whatever diuretics may be employed.

PHOSPHATE OF SODA.

The phosphate of soda is a neutral salt of a purgative quality, valuable on account of its not having the nauseous taste of some other purgative salts; and, therefore, being fitter for delicate stomachs. It may be given in broth or beef-tea; and if we season these liquids with it, instead of common salt, it will scarcely be perceived that we are giving medicine. To compensate for this useful property, we must add, that its price is considerably greater than Glauber's or Epsom salt. The dose of phosphate of soda is from four drachms to an ounce.

PHOSPHORUS.

Phosphorus is a peculiar substance of a cheesy texture, and a pale yellow colour, exhibiting, when broke, a fracture like glass. It is luminous in the dark, and extremely combustible, inflaming at the ordinary temperature of the atmosphere. It has an acrid taste, and a strong smell like garlic. It liquefies in hot water, assuming the appearance of oil. It is also soluble in the essential and fat oils, and in sulphuric ether. When applied to the skin, it produces burning pain, and inflammation. Taken inwardly, in doses of from

an eighth to a fifth of a grain, it acts as a stimulant and diuretic; and in larger doses, it produces inflammation of the stomach and death. It is hence a most active corrosive poison. It has been recommended in a variety of diseases; but must be considered as an uncertain and most dangerous prescription.

PINK ROOT.

The root of the *spigelia marylandica*, or pink root, ranks among our most active anthelmintics, or worm destroyers. The *spigelia* is indigenous to the United States, and is produced in great abundance. The root has a bland, and somewhat nauseous taste; it contains a considerable portion of mucilage, but little or no resinous matter. Its active principles are extracted by water. It is now fully ascertained that the *spigelia* possesses a narcotic property, in consequence of which it is liable, when taken in an over-dose, to produce unpleasant, and even alarming symptoms. The pink root may be given either in powder or in decoction—the last form is the best. Of the powder, the dose for a child is from ten to twenty grains. The decoction is made from one ounce of the root to a pint of water; of this, the dose is a tea-cup full every two or three hours. The exhibition of the pink root should be followed by a dose of some active purgative.

PIPSISSEWA.

The leaves of the *chimaphila umbellata*, pipsissewa, or winter-green, a plant common to every part of the United States, have been recently introduced as a tonic and astringent of very considerable powers; and likewise, as a useful and efficacious diuretic. The leaves may be given in the form of decoction, of which a pint may be taken in the day.

PITCH.

Pitch is obtained from the *pinus*, or fir-tree. A conical cavity being dug in the earth, communicating at the bottom

with a reservoir, billets of fire-wood are placed, both to fill the cavity, and to form a conical pile over it, which is covered with turf, and kindled at the top. This wood is made to burn downwards, and is converted into charcoal, and the smoke and vapours are made to descend into the excavation in the ground, where they are condensed, and pass into the receiver with the melted matters, and this mixture is called *tar*. By long boiling, tar is deprived of its volatile ingredients, and is then denominated *pitch*. Pitch is used as an external application in scald head, and some other diseases of the skin, either by itself, or mixed with the citrine ointment; and pills of pitch have been given in certain stages of consumption, with strong assertions of their utility. The vapour also of pitch or tar has been diffused through the apartments of consumptive patients, and the inhaling of this vapour has also been thought of service in chronic affections of the lungs.

BURGUNDY PITCH.

Burgundy pitch is a resinous matter, obtained by exudation from various kinds of fir-trees, when an incision is made through the bark, into the wood. Burgundy pitch gives its name to a plaster composed of itself, and various other resinous and aromatic substances. It is a very common popular application in pectoral complaints, in disorders of the liver, and in rheumatic affections. Its good effects, which are unquestionable, are to be ascribed to its keeping up a degree of warmth, and so acting the part of a mild stimulant and blister, without going the length of either reddening the skin, or occasioning a collection of serum, as mustard poultices or Spanish flies do.

PLUMMER'S PILLS.

These pills are composed of antimony and mercury, and were first recommended by Dr. Plummer, of Edinburgh, as an alterative in general derangements of the health. The dose is one or two pills night and morning.

POISON OAK.

The swamp sumach, *rhus toxicodendron*, or poison oak, is a very common shrub in the United States, inflaming the skin, to a very alarming extent, of those who happen to touch it, or even approach close to it. It does not appear to be poisonous when taken inwardly. The poison oak has been employed principally as a remedy in palsy, consumption, and some diseases of the skin. It may be given in substance, or in the form of extract. The dose of the powdered leaves is from one to ten grains, and of the extract twenty grains, to be gradually increased, until some effect upon the system is evident.

POKE.

The poke, *phytolacca decandria*, is a well-known shrub, growing in waste grounds, and by the road-side in most parts of the United States. It bears in the fall large bunches of scarlet or purple berries, the juice of which gives a purple dye. All the parts of the plant are endowed with medicinal properties. The cases in which the poke is employed, are rheumatism, especially when occurring in syphilitic patients, and piles, and externally it is applied for the cure of itch, scald head, and foul ulcerations. The leaves or roots are given in the dose of from eight to ten grains; the saturated tincture in the dose of a table-spoonful. In the treatment of piles, a watery infusion is employed, which may also be injected into the rectum. An extract is made by boiling down the root in the same manner as other extracts. The young shoots of the poke are eaten as a substitute for asparagus.

POMEGRANATE BARK.

The rind of the fruit of the pomegranate (*punica granatum*) is recommended as a tonic and astringent in all cases in which medicines of this class are required, in the dose of ten to ninety grains; or it may be used in decoction. As a remedy for tape-worm, the bark of the root of the pomegra-

nate is employed in India, and of its efficacy as an anthelmintic, we have the strongest evidence. It is given in decoction, made by boiling two ounces of the fresh bark in a pint and a half of water, until only three quarters of a pint remain.

POTASS.

Potass is the name of one of the alkalies; which class of bodies are distinguished by their peculiar taste, their power of changing the vegetable blues to green, of neutralizing acids, and forming soaps with oil. As a medicine, potass is of considerable importance. When pure, and deprived entirely of water, it is used as a caustic to destroy the skin for the formation of an issue; or its solution of a definite strength, as directed in the pharmacopœia, in the proportion of twenty drops to two ounces of water, may be given internally in cases of a tendency to stone or gravel.

Carbonate of potass. Potass is more generally used in combination with the carbonic acid; by which it is rendered milder, and still the alkaline properties are to a considerable degree preserved. The carbonate of potass is given in dyspeptic cases, in the dose of a drachm three or four times a day, in water or an infusion of chamomile flowers; and in cases of stone, ten grains may be given as often. The carbonate of potass is used in combination with lemon-juice, to form the effervescing draughts useful for stopping vomiting, and for determining to the surface of the body.

POTATO FLY.

The *lytta vittata*, or potato fly, is an insect which feeds principally on the potato plant, upon which it is seen in great quantities towards the beginning of August. It is said to be found no where but in the United States. It resembles outwardly the cantharides, though smaller, and of a rusty colour; as a vesicatory, it is equal, if not superior, to the Spanish fly.

PRECIPITATE, RED.

When a chemical mixture is made among several substances held in solution, and one of them being insoluble, after the mixture falls to the bottom, it is called a precipitate. The substance, commonly called *red precipitate*, is an oxyde of mercury, obtained by precipitation, which is used as an escharotic, and is a very common application to chancres. When mixed with lard, in the proportion of five grains of the precipitate, to a drachm or a drachm and a half of lard, it forms a very valuable stimulating ointment, which is useful in various kinds of ophthalmia. For whatever purpose it is used, it should be very finely powdered.

QUASSIA.

Quassia is a species of wood imported from the West Indies, the infusion of which forms a very useful tonic bitter. The strength of the infusion is two drachms of the rasped wood to a pint of boiling water; infused for four hours, and strained. As it does not, like many vegetable infusions, blacken the preparations of iron, chalybeates may be joined with it very commodiously. The dose of the infusion is from half a pint to one pint in the day. There is also a decoction made by boiling six drachms of the bark in two pounds of water. A wine-glassful may be taken three times a day.

QUININE, OR QUINIA.

Quinia is a vegetable alkaloid body, discovered by modern chemistry in the yellow Peruvian bark, (*cinchona cordifolia*). It is a white powdery substance, sparingly soluble in water, but dissolved by warm alcohol, from which it is not deposited in crystals. Quinia unites with acids, and forms salts, the most important of which is the sulphate. This is soluble in water, and crystallizes. It is now much employed in medicine, being found to answer all the purposes of bark; and as a small dose only is necessary, it does not produce the unpleasant effects of the bark

in powder, or infusion. Eight grains are considered equal to an ounce of the powder.

RHATANY.

The root of the *krameria triandria*, or rhatany, contains a peculiar modification of tannin, with a slight trace of gallic acid. In all its forms, it is eminently astringent, and has been used with much success in leucorrhœa, and in hæmorrhages from the uterus, occurring in very feeble or broken-down habits. It may be exhibited either in decoction or tincture. The latter form may be prepared by macerating two ounces of the root in a pint of alcohol. An extract is also prepared from the root which retains all the active properties of the latter.

RHUBARB.

The rhubarb is a plant, the root of which is much used in medicine. All the rhubarb of commerce grows on the mountains of Chinese Tartary. It is imported into Russia; and what comes to us from thence is always good, as much attention, both in purchasing and transporting it, is paid by order of the government. It is improperly called Turkey rhubarb. Rhubarb grows very readily in America, and it has been cultivated in Europe for medical use; but it has not been produced by any means equal to the Asiatic.

Rhubarb is a mild cathartic, which operates without violence or irritation, and may be given with safety, even to pregnant women, and to children. In some people, however, it occasions severe griping. Besides its purgative quality, it is celebrated as an astringent, by which it increases the tone of the stomach and intestines, and proves useful in diarrhœa, and disorders proceeding from laxity.

Rhubarb is exhibited, 1. In substance, in the form of powder. It operates more powerfully as a purgative in this form than in any other. The dose for an adult is about a scruple or upwards. On account of its great bulk, it is sometimes unpleasant

to take a sufficient dose; its laxative effects are therefore often increased by the addition of neutral salts, or other more active purgatives. In smaller doses, (from three to six grains,) it often proves an excellent stomachic.

2. In infusion. Rhubarb yields more of its purgative property to water than to alcohol. The infusion is, however, considerably weaker than the powder, and requires double the dose to produce the same effect. It is well adapted for children, but must be always fresh prepared. 3. In tincture. On account of the stimulating nature of the menstruum, and its trifling degree of activity, this preparation frequently can not be exhibited in doses large enough to operate as a purgative. Its principal use is a tonic and stomachic; but it is one which should seldom be employed.

The virtues of rhubarb are destroyed by roasting, boiling, and in forming the extract.

Rhubarb is one of the medicines most usefully given to children. As a laxative, it may either be given to them alone in doses of from five grains to ten, in water, gruel, or jelly; or two grains of calomel with six of rhubarb may be given; or it may be combined with magnesia, four grains of rhubarb to ten or fifteen of magnesia; or in the form of Gregory's mixture, one part of rhubarb to two of magnesia, with a fourth part of ginger.

The compound rhubarb pills are composed of rhubarb, aloes, and myrrh, flavoured with a little oil of peppermint. They are an excellent stomachic, and may be taken to the extent of two pills every forenoon, while there is weakness of the digestive powers.

ROCHELLE SALT.

Tartrate of potass and soda, or Rochelle salt, is a purgative of great utility, as being an excellent cooling laxative, without the nauseous taste that some other of the neutral salts possess. The crystals are large and beautiful; the dose is from six drachms to an ounce, or an ounce and a half. This salt gets

its name from having been originally made at Rochelle, by an apothecary of that town, named Seignette, whence it is sometimes also called *Sal Seignetti*.

SARSAPARILLA.

The Sarsaparilla is a plant growing in South America, the roots of which had great celebrity many years ago, for their power of curing syphilis. It is now agreed, that sarsaparilla has no power whatever in the cure of true syphilis, though it has some good effects in certain cutaneous disorders. It is of service in those anomalous pains of the bones and joints, in the sore throat, and other symptoms, which appear to be owing to the combined effects of mercury and syphilis. In spreading sores, in chronic diseases of the skin, in some forms of scrofula, and in debilitated constitutions, it has done good. The best way of using it is in decoction, or compound syrup, of which a pint is to be taken daily, or an ounce of the powder. It produces a pretty copious perspiration, and in weak constitutions this may require to be checked by the addition of a little sulphuric acid, or elixir of vitriol.

SASSAFRAS.

The wood, root and bark of the *laurus sassafras*, a well-known tree, growing abundantly over the whole United States, have all a warm, sweetish, aromatic taste, and a fragrant aromatic odour, which is destructive to many insects. The sassafras is reported to be both diuretic and diaphoretic, and has been employed in cases of scurvy, chronic rheumatism, and in various diseases of the skin; it was formerly esteemed as a remedy in syphilis. It is also a warm stomachic, increasing the force of arterial action, and in weak infusion, may be considered a valuable auxiliary to diaphoretic medicines, in all cases unattended with fever or inflammation. *The pith of the small branches of the sassafras*, infused in water, renders the latter mucilaginous, and forms an excellent demulcent drink in many diseases, and a

valuable wash for the eyes when inflamed.

SAVINE.

The leaves of the savine (*juniperus sabinae*) have a strong, disagreeable smell, and a hot, bitter, acrid taste. They give out a great part of their active matter to water, and the whole to alcohol. Distilled with water, they yield much essential oil, which possesses all the properties of the savine. The savine is employed as a stimulant, diuretic, and emmenagogue. On the vessels of the uterus it has a powerful effect. It is a proper remedy in chlorosis, only when the system possesses some degree of tone, while the vessels of the womb are still inert; upon the whole, however, it is to be considered a dangerous remedy, unless administered with the greatest judgment and caution.

Savine ointment. An ointment made from the powdered leaves of the savine, is used as a stimulating application to blisters and issues, when a permanent irritation and discharge is required to be kept up.

SCAMMONY.

Scammony is a resinous substance of a purgative quality, obtained from a plant which grows in Syria and other countries of the east, the *convolvulus scammonia*. Its purgative qualities are pretty strong and effectual. It may be given in powder, from three to eight grains, combined with calomel or with jalap; and it forms an active ingredient of the very useful pills, termed the compound colocynth pills. Scammony is good for cleaning the bowels of children when loaded with slime; for this purpose it is given combined with calomel; and a compound of equal parts of calomel, jalap, and scammony, much used for this purpose, is known by the name of *pulvis basilicus*.

SEA WATER.

The water of the sea is principally a solution of muriate of soda, with a small portion of muriate of magnesia,

muriate of lime, and sulphate of soda. Its effects on the body, when taken internally, are of a purgative nature; but it is seldom prescribed, as we have many purgatives more agreeable and effectual. As a cathartic, a pint is the usual quantity, which should be taken in the morning, at two doses, with an interval of half an hour between each.

SEIDLITZ POWDERS.

Seidlitz powders consist of two different parcels; the one, contained in a white paper, consists of two drachms of tartarized soda, and two scruples of carbonate of soda; that in the blue paper, of thirty-five grains of tartaric acid. The contents of the white paper are to be dissolved in half a pint of spring water, to which those of the blue paper are to be added; the draught is to be taken in a state of effervescence. The acid being in excess renders it more grateful, and no less efficacious, as a purgative. This preparation can not be said to bear any other resemblance to the mineral water of Seidlitz, than in being purgative.

SELTZER WATER.

This is a water slightly alkaline, highly acidulated with carbonic acid. It is thought to remove many of the symptoms of hectic fever, eruptions of the skin, disorders of digestion, acidity and heartburn, and spasmodic pains of the bowels. It is much recommended in diseases of the urinary organs, especially those in which gravel is formed. The dose is from half a pint to a pint.

It may be made by adding bicarbonate of soda to the mineral water of the shops.

SENEGA.

The *polygala senega* is a native of the United States, and a most important article of the materia medica. As an emmenagogue, the root is strongly recommended in the form of decoction, made from an ounce of the root boiled in a pint of water until two-thirds are dissipated; three or four ounces of which are a dose. As a diuretic and

expectorant, the senega root is also highly esteemed, in all cases unattended with inflammation and fever.

SENNA.

The leaves of the *cassia senna* have a faint sickly smell, with a slightly bitter, sweetish, nauseous taste. They constitute one of our most certain and useful purgatives. They may be given in the form of infusion, made from one ounce of the leaves to a pint of boiling water, of which the dose is a wine-glassful every two hours until it operates. To avoid griping and sickness, it is customary to add some mild aromatic. A very excellent form for the administration of senna, is, take of the senna leaves one ounce, manna or brown sugar, half an ounce, cream of tartar, three drachms, cinnamon bark, one ounce; infuse the whole in a pint and a half of boiling water, in a covered vessel.

SERPENTARIA.

The roots of the *serpentaria Virginia*, or Virginia snake-root, are almost entirely destitute of smell, with, at first, a sweetish taste, but afterwards hot and pungent, producing a very peculiar tingling sensation in the fauces. They are used either in substance or infusion. Of the powdered root, the dose is twenty to thirty grains; of the infusion, one to two drachms. In their effects upon the system, they are reputed a stimulant, tonic, and diaphoretic. The diseases in which the serpentaria has been found most beneficial, are the lower grades of fever, and intermittents, when used in combination with the bark; typhus pneumonia, bilious pleurisy, &c.

SOAP.

Soap is employed as a purgative, lithontriptic, and alterative, in the dose of from twenty to fifty grains, twice a day. As a purgative, soap, aloes and assafœtida, or soap, aloes and gamboge, are excellent prescriptions.

Soap liniment. A combination of two ounces of the soap liniment of the shops, one ounce of water of ammonia,

and half an ounce of tincture of opium, forms a most admirable rubefacient in many cases of chronic rheumatism, and chronic pains.

SODA.

Soda is one of the fixed alkalies, commonly called the mineral alkali, as distinguished from potass, the other fixed alkali, which is usually obtained from vegetables. Soda is very seldom used in a separate state; but more commonly combined with carbonic acid, from which it is easily disjoined, as the carbonic acid readily quits it when a stronger acid is brought into contact with it.

Soda powders, as they are called, are useful in various disorders of the digestive organs. Their good properties are owing, not to the soda, but to the carbonic acid, which is disengaged from the carbonate of soda by the application of a stronger acid, either the citric or the tartaric. The method of using them is this. Dissolve the carbonate of soda in two ounces of water; and the acid, in an equal quantity of water, in another glass; put the two solutions together, and, when they are in the act of effervescing, let them be drunk speedily; or they may be taken separately, and the effervescence or disengagement of carbonic acid will go on in the stomach.

Soda water is water strongly impregnated with carbonic acid, disengaged from the carbonate of lime. By proper pressure, water can be made to take up six times its bulk of carbonic acid. Soda water is brisk and sparkling, of a pleasant sub-acid taste, but should not be drunk during dinner, or immediately after it; as the great quantity of carbonic acid (fixed air) which it contains, being disengaged, inflates the stomach, and prevents those muscular actions which are necessary for the conversion of the food into chyme.

SQUILL.

The root of the sea-onion, or squill is used in medicine as an expectorant and to give relief in complaints from

the lungs; it is also used as a diuretic. It is apt to occasion sickness and vomiting; and, in too large a dose, the vomiting is followed by bloody stools, vertigo, syncope, and death. The dose of squill, as a diuretic, or expectorant, is from one to two grains, twice a day; and it is conveniently given in the form of the squill pill of the Edinburgh Pharmacopœia, in which one grain of squill is united to three of ammoniacum, three of caraway seeds, and three of extract of liquorice. The dose is two pills, morning and evening. They are useful in catarrhal complaints, in asthma, in several dropsical cases, and other diseases. Squill imparts its virtues to vinegar; and the vinegar of squills is a convenient mode of giving it in a liquid form; a pectoral mixture may be made by adding an ounce of squill vinegar to three ounces of the syrup of tolu, and three or four of cinnamon-water, or peppermint-water. With common syrup, it makes syrup of squills.

STRAMONIUM.

Stramonium is the name now in general use for the *datura stramonium*, or *thorn-apple*, a plant having narcotic properties, which is very poisonous when taken in an over-dose, and which has of late years been much extolled for its virtues in asthma, when smoked like tobacco. The leaves and the lower part of the plant are thus used; the patient, after smoking it for some time, falls asleep, and awakens recovered from the paroxysm. In some cases, a perfect cure is effected; but in general the relief is only temporary. Dr. Bree, who has written a good work on disordered respiration, says that the indiscriminate use of the smoke of stramonium has occasioned dangerous and hurtful effects in frequent instances. In some cases of aged or apoplectic subjects, death has been the consequence. In chronic diseases, attended with acute pain, the extract of stramonium, from an eighth of a grain to a grain, is said to lessen powerfully, and almost immediately, sensibility and

pain; but its place may well be supplied by more safe narcotics.

STRENGTHENING PLASTER.

This is a plaster made from olive oil, beeswax, resin, lead plaster, and the red oxyde of iron. Though in many cases it may do good, as a very gentle rubefacient, it has no power to communicate strength to the part upon which it is applied.

STRYCHNINE.

Strychnine is an alkaloid substance discovered in several species of *Strychnos*, as the *Strychnos nux vomica*, *S. Sancti Ignatii*, *S. Colubrina*, and *S. Triente*, which yields an Indian poison, the Upas Trienté. Strychnine has an intensely bitter taste, which is perceptible, it is said, when a grain is dissolved in eighty pounds of water. It is very sparingly soluble in water, but easily soluble in alcohol and the volatile oils. Except the prussic acid, no poison is endowed with such destructive energy as the strychnine. There is little doubt that half a grain thrust into a wound, might kill a man in less than a quarter of an hour. It acts powerfully in whatever way it is introduced into the system, but most energetically when injected into a vein. The symptoms produced are very uniform and striking. The animal becomes agitated and trembles, and it is then seized with stiffness and starting of the limbs. These symptoms increase, till at length it is attacked with a fit of violent general spasm, in which the head is bent back, the spine stiffened, the limbs extended and rigid, and the respiration checked by the fixing of the chest. The fit is then succeeded by an interval of calm, during which the senses are quite entire. But another paroxysm soon sets in, and then another, till at length a fit takes place, more violent than any before it, and the animal perishes suffocated. The first symptoms appear in sixty or ninety seconds, when the poison is applied to a wound.

Precisely the same symptoms are produced by the *nux vomica*; half a

drachm of the powder killed a dog in forty-five minutes, and a grain and a half of the alcoholic extract thrust into a wound, killed another in seven minutes. The cause of death appears to be prolonged spasms of the muscles of respiration: the diaphragm partakes in the spasm of the external muscles.

Strychnine and the alcoholic extract of the *nux vomica* have been used for the cure of diseases of debility, for palsies, and amaurosis. The commencing dose is half a grain of the extract in the evening, formed into a pill, and gradually increased to four or six grains. Of strychnine, the dose is one-twelfth of a grain, or six drops of the tincture.

SULPHUR.

Sulphur is an inflammable substance found in volcanic countries. Sulphur, or brimstone, as it is generally called, is procured in the form of cylinders, and in fine powder. It has neither taste nor smell; but when rubbed it has a faint peculiar odour. It is of a yellowish colour; but when procured by precipitation, it is white, probably owing to its containing water. It is purified by sublimation; and when thus purified, it is called flowers of sulphur, in which form it is used as a mild purgative, which purpose it completely answers. The dose is about one or two drachms. It may be given in syrup, treacle, or conserves; and when combined with an equal portion of cream of tartar, it forms one of the mildest and best laxatives for those who are troubled with piles. Sulphur has long been famous for its power of curing diseases of the skin, and for being a specific in the itch. For this purpose, it is applied in the form of ointment; the sulphur being mixed with some greasy substance, and rubbed over the parts affected, or as much of them at a time as may be judged proper. At the same time, the patient may take a little sulphur internally. The rubbing for the itch may be continued for four or five days, when the disease is commonly removed. There are great po-

pular apprehensions about exposure to the air, when using sulphur. It no doubt pervades the pores of the body; this is evinced by the smell it exhales, and by blackening silver in the pocket; but while under its influence, there is no more needed, than the usual precautions against taking cold. Sulphur is a favourite remedy with the common people, in measles and other eruptive diseases. It is very harmless; and may, by acting gently on the bowels, be of some service in the commencement of these diseases, though it will not answer the purpose for which they intended it, that of bringing out the eruption more speedily and completely. Sulphur counteracts the activity of mercury, and should, therefore, never be used to assist the apothecary in extinguishing it, in order to make the blue ointment.

TANSY.

The tansy, (*tanacetum vulgare*), was formerly employed as a tonic and emmenagogue, but is now seldom used, excepting as a vermifuge, in the form of a strong infusion of the leaves.

TAR.

Tar is obtained by condensing the smoke and vapours which issue from fir-wood when it is burned. The vapour of tar is recommended to be diffused through the apartments of those afflicted with consumption and other disorders of the lungs; and in some cases this inhalation has appeared to do good. We may mention here, what we should have stated under Pitch, that that substance, according to Dr. Bateman, has in some instances been beneficial in *ichthyosis*, or fish-skin disease, having occasioned the rough cuticle to crack and fall off, leaving a sound soft skin underneath. Tar made into pills with flour, or any farinaceous powder, may be taken to a great extent, not only without injury, but with advantage to the general health; and affords one of the most effectual means of improving the languid circulation, and the inert and dry condition of the

skin, occasionally met with. The quantity to begin with may be ten grains, three times a day. The unpleasant pitchy flavour of the pills is materially diminished, if they are kept for some time after being made up.

Tar-water. Water impregnated with the smell and taste of tar, by infusing tar in water, stirring it from time to time, and pouring off the clear liquor. It was once a remedy in great vogue, and the learning and genius of Bishop Berkeley were employed to recommend it as an almost universal medicine. It is now used occasionally as a drink, in chronic affections of the lungs.

Tar-ointment. An ointment made by melting together tar, resin and mutton suet, has been found useful in various diseases of the skin. For the cure of scald head, the following will often be found useful: one ounce of tar rubbed up with half an ounce of citrine ointment.

TIN.

Tin is sometimes used for the purpose of expelling worms from the intestines. It is used in its metallic form, reduced to a very fine powder. The dose is from one to two drachms, and it is thought to act merely by its mechanical properties disturbing the worms, and by its bulk and roughness carrying them before it. It is now, however, very little used.

TOBACCO.

The leaves of the tobacco are powerfully narcotic; but being altogether unmanageable as a medicine, tobacco is seldom administered internally. A tincture of tobacco has, however, been recommended, principally as a diuretic, or in larger doses, as a powerful sedative, in dropsy, and in cases of violent inflammation. Of its remedial powers, in either respect, we have little evidence.

Diuretic drops of Ferriar. These are composed of half an ounce of the tincture of tobacco, and the same quantity of oxymels of squill and colchichum, and sweet spirits of nitre.

They are given in dropsics, in the dose of a tea-spoonful, four times a day.

Tobacco poultice. A poultice made of the moistened leaves of the tobacco, has been recommended to be applied to the pit of the stomach to produce vomiting, and to destroy worms. It is, however, a most dangerous prescription.

Tobacco salve. Snuff rubbed up with lard, is sometimes used in cases of scald head, and chronic affections of the skin, and is a very popular application to the chest, in cases of croup. It has in some cases, however, produced the most violent effects, sometimes death.

Tobacco injection. A strong infusion of tobacco thrown into the rectum, is employed by surgeons to aid in the reduction of strangulated hernia, and in some cases of obstinate costiveness. Its violent effects render the tobacco injection a very unsafe prescription.

TURNER'S CERATE.

This cerate is a very useful dressing to produce the healing of simple ulcers, excoriations, slight burns, blisters, &c. It is made by melting together half a pound of yellow wax and two pounds of lard, and stirring into the mixture, while fluid, half a pound of prepared carbonate of zinc.

TURPENTINE.

Turpentine is a liquid resinous substance, obtained from various species of the pine tribe. The oil of turpentine is obtained by distilling turpentine, when this volatile oil rises. The oil of turpentine has of late been successfully used for expelling the tape-worm. The dose is from an ounce to an ounce and a half; it has even been given to the extent of four ounces at once, without any perceptible bad effects, or so much inconvenience as would follow from an equal quantity of gin. It generally acts as a speedy purgative, and discharges the worm, in all cases, dead. In obstinate constipation, it is of singular benefit. In inflammation of the

bowels, colic, and various spasmodic affections of the viscera of the abdomen, oil of turpentine has been given with excellent effect, both by the mouth and by way of clyster. Turpentine is given in affections of the urinary organs, in doses of from ten drops to a drachm. Oil of turpentine is applied externally either alone or mixed with olive oil, to indolent tumours and paralytic limbs. It is applied also as a styptic to stop bleeding; and some practitioners use it in burns and scalds, and when the part is completely destroyed, it is often beneficial. In cases of deafness from deficiency of wax, a portion of a mixture, made by adding ten drops of turpentine to an ounce of almond oil, may be introduced into the ear upon a little cotton.

TUTTY.

Tutty, or oxide of zinc, is a dry powder, used to prevent excoriation in children, at the folds where surfaces are apt to come in contact, as the groin, the arm-pits, behind the ears, &c.

UVÆ USRI.

The uvæ ursi, or whortleberry, is a small evergreen shrub, the green leaves of which, when picked from the twigs, and dried by a moderate heat, yield a powder the taste of which is at first smartly astringent and bitterish, and at length leaves a flavour like liquorice. The effects of this powder are astringent and tonic; and it is used in whites, and diseases of the urinary organs, attended with a flow of mucus along with the urine. The dose of the powder is from twenty to sixty grains in water, milk, or gruel, three or four times a day.

VALERIAN.

The root of the wild valerian is celebrated as an antispasmodic and tonic remedy, and as such is used in various nervous and hysterical affections. It is given in powder to the extent of twenty or thirty grains, but it is more advisable to give it in infusion or decoction; or, as it is kept in the shops, in the form of the volatile tincture, in

which the valerian is combined with ammonia. The odour of valerian is particularly attractive to cats.

WARMING PLASTER.

This plaster forms an excellent local irritant, in cases in which the action is wished to be kept up for a long time, without exciting vesication. It is composed of Burgundy pitch and Spanish-fly cerate, seven parts of the first and one of the latter, melted together, and then spread on leather.

WARNER'S CORDIAL.

This is an excellent purgative in persons troubled with a weak stomach, flatulence, or tendency to cramps of the bowels. It is composed of an ounce of rhubarb, two drachms senna, a drachm of coriander, and the same quantity of fennel-seed bruised; red saunders, two drachms, saffron and liquorice, of each, half a drachm, stoned raisins, half a pound, and diluted alcohol, three pints; to be steeped together for two weeks, then strained through paper: dose, half an ounce or an ounce.

WORM-SEED.

The seeds of the worm-seed, or *chénopodium anthelminticum*, are employed as a destroyer of worms, in the dose of from twenty to forty grains, powdered; or a tea-spoonful of the fresh juice of the plant may be given. The essential oil procured from the seeds, is likewise an active vermifuge; three to five drops, or more, may be given to a child two or three years old, mixed with mucilage and sugar. The worm-seed is unquestionably one of our very best anthelmintics. It is said to have succeeded even in cases of tenia. It requires some caution, however, in its use.

WORM-WOOD.

The worm-wood is a plant having a strong and peculiar odour, and an intensely bitter and disagreeable taste. Infused in ale, it forms the drink called *purl*. It may be used as a tonic and

stomachic from its bitterness, and has its reputation and its name from being supposed to be good against worms. The dose is from one to two drachms of the powder of the stalk, or an ounce of the infusion made by an ounce of the plant to a pint of water.

YEAST.

Yeast is employed in medicine as a purgative, in cases of typhus fever, in the dose of a wine-glassful, and as an application to gangrenous ulcers.

Yeast poultice. To one pound of flour add half a pint of yeast, and mix them well together. This poultice is useful in cases of mortification, and to correct the fœtor from ill-conditioned ulcers.

ZINC.

Zinc is a metal of a bluish white colour. When it is rubbed for some time between the fingers, they acquire a peculiar taste, and emit a very perceptible smell. As zinc is one of the most easily oxydized metals, it is employed in the formation of galvanic batteries. When zinc is alloyed with copper, in different proportions, it forms brass, pinchbeck, Prince Rupert's metal, &c.

Acetate of zinc. A solution of this salt is used as a wash in ophthalmia, and as an injection in gonorrhœa.

Carbonate of zinc, calamine, lapis calaminaris, is usually of a grayish, yellowish, or pale reddish colour. One part of this substance, very finely powdered, and added to five parts of sim-

ple cerate, forms an excellent application for cutaneous ulcerations and excoriations; and is a good dressing for burns, after the first violence of their symptoms is over. This cerate resembles that called Turner's cerate. The powder of calamine is sometimes sprinkled on ulcerating surfaces.

Oxyde of zinc. This oxyde has been used in epilepsy, in the dose of from two to ten grains, two or three times a day; but with no very remarkable effects. An impure oxyde of zinc, well known by the name of *tutty*, is dusted upon the parts of infants which are liable to be chafed by rubbing against each other, as the groins, neck, armpits, &c.

Sulphate of zinc, white vitriol, is tonic and astringent, and in large doses, acts as an emetic. It produces very speedy vomiting; and is, therefore, used to evacuate the stomach when an overdose of laudanum, or other vegetable poison, has been swallowed. The dose for this purpose, is thirty grains. In doses of two grains, twice a day, it is used in indigestion. In whooping-cough, and other spasmodic coughs, one grain of the sulphate of zinc, and four grains of myrrh, twice a day, have a good effect. It is used, of the strength of two grains to the ounce of spring-water, or rose-water, as a wash for the eyes; also for sore nipples, and as an injection, in the whites. The white vitriol of commerce should not be used in medicine, as it generally contains impurities, principally the sulphate of copper.

PART IV.

SURGICAL DISEASES

AND

ACCIDENTS.

ABSCESS.

THE term abscess signifies a tumour, or circumscribed cavity containing pus; or a collection of purulent matter in any part of the body, which has been previously the seat of inflammation. Abscesses form, after inflammation, both in the internal parts of the body and in those which are in sight.

Common abscess. An abscess formed on some external part of the body, which has been previously the seat of inflammation. Whenever inflammation occurs, the most proper course is to endeavour to remove it by an early resort to appropriate remedies, before it causes suppuration, or the formation of an abscess; but if this latter can not be prevented, we must endeavour to accelerate its progress by warm fomentations, and by poultices. These are to be made of bread and milk; oat-meal or linseed-meal and water; and to promote the ripening of an abscess in the inside of the mouth, a roasted fig or apple may be used. When the tonsils (or almonds of the ear) are tending to suppuration, the patient should draw into the mouth the steam of boiling water, alone, or with a little vinegar added to it. In general, those poultices are best which retain their heat the longest, and they should be frequently changed, to prevent their becoming cold, and thus having a con-

trary effect to what we wish them to have. The tendency to suppuration may be known by the inflammation continuing long; by the stretching pain becoming less; by a throbbing sensation, and the patient's being affected with cold shiverings. When an abscess forms in a place under our inspection, it is accompanied with swelling, whiteness, or yellowness of the skin, and a soft feel, as if there were a thickish fluid in a bag. When matter is formed, it must be discharged, and nature endeavours to accomplish this by causing the matter to have a tendency to the nearest outlet: thus an abscess formed in a fleshy part of the body will point to the skin, one in the lungs will burst into the air cells, and one in the liver, either into the belly, or externally through the side. When the abscess is quite ripe, which is known by the pain being lessened, and the matter pointing, it is, in general, best to give it vent by opening it with a lancet, or other clean cutting instrument; and this, in the position or situation which is lowest, on purpose to let the abscess empty itself by the weight of the fluid. It is better to have a free vent of our own making, than to allow the matter to find its way under the skin, to distant and inconvenient parts, or to allow the matter to discharge itself by a ragged and irregular opening. It is almost always proper to make the

cut large, as a small one is nearly as painful, and as it is liable to close too soon, and thus occasion the necessity of repeating the operation. When the abscess is large and deep, a small piece of lint should be put between the lips of the wound, that it may close from the bottom; and this is to be renewed at each dressing. The poultices are still to be continued, till the thick yellow appearance of the matter changes into a thin watery discharge; after this it is proper to discontinue them and to dress with cerate, or healing ointment.

In scrofulous abscesses about the neck or face, especially in females, it is a matter of difficulty to determine whether it is best to allow them to burst of themselves, or to make an opening with the lancet. Whichever of the methods is employed, the discharge is commonly of an unhealthy kind, and continues long; and a scar remains, for which the surgeon is blamed if he has given vent to the matter by an incision.

Another way of letting out matter from an abscess is by caustic, viz: the application of some acrid substance, which burns or corrodes the skin, and makes an opening. Some persons are so afraid of a cutting instrument, that this seems to them a preferable way of opening an abscess; but it should rarely be done, as the pain is greater than when the lancet is used, and the likelihood of deformity is increased. When it is wished, as much as possible, to exclude the air from the inside of an abscess, an opening is made by passing a broad cutting needle, for the purpose of bringing through the sides of the abscess a skein of silk or cotton. This is desirable, particularly in lumbar abscesses, or those collections of matter which come from the inside of the belly, and point at the upper part of the thigh; as air admitted into them is often found to be the cause of hectic fever, and consequent general ill health.

The degree of danger which attends an abscess, depends on its situation and its consequences. If it is situated in the lungs, it may burst into the air

cells, and prove fatal by suffocation; or if in some of the viscera of the belly, it may be effused within the cavity of the peritoneum, or investing membrane of the bowels, and excite inflammation there. Large abscesses are dangerous by the wasting discharge with which they are accompanied; and by the hectic fever and general symptoms which, in certain constitutions, follow them.

Boil. A boil is a small tumour common to every part of the surface of the body; hard, circumscribed, acutely tender to the touch, and suppurating with a hard core in the centre. It is chiefly found in persons of a full habit, and great vigour; but is sometimes met with also in debilitated patients, who are evidently suffering from ill health.

When it occurs in strong and vigorous patients, they should be put on a low diet, and some cooling opening medicine should be given, as a solution of salts, or cream of tartar, or senna-tea with the addition of salts. If the boil be large, and attended with considerable swelling, pain and fever, bleeding will be proper. A common poultice should be applied to the boil till it suppurates and breaks, when it may be dressed twice a day with Turner's cerate, or some mild ointment, till it heals. If the ulcer gets into an indolent state, and wants stimulating, in order to its healing, we may apply the basilicon ointment, or one composed of two parts of spermaceti ointment, and one part of the ointment of nitrate of mercury.

Boils not unfrequently arise in weakly habits, and where the constitution is evidently in an unhealthy state; in such cases, the patient should be put on a nourishing diet, chiefly of milk and farinaceous aliment—he should take daily exercise, if possible, in the open air, and use the warm bath and frictions to the surface every other day. An alterative pill, composed of blue mass and soap, of each five grains, and ipecacuanha one grain, given every night, or every other night, will be

found of great service. The compound decoction of sarsaparilla is likewise an excellent medicine, and may be taken at the same time.

Gum-boil. Gum-boils are sometimes limited to the substance of the gums, and sometimes connected with the decay of a tooth, or its socket. In the first variety, it is a disease of only a few days' duration, and ceases almost as soon as the boil bursts, or is opened; in the second, it will often continue troublesome till the carious tooth is extracted, or the carious socket has exfoliated, or the whole of its texture is absorbed.

Gum-boils, when connected with an unhealthy condition of the subjacent teeth, rarely disperse without passing into suppuration; and it is, therefore, generally better to encourage this process, by the use of warm fomentations, or cataplasms, than to repel it. An early opening of the tumour is of importance, as, from the structure of the parts concerned, the walls of the abscess are mostly tough and thick, and the confined matter seldom obtains a natural exit with sufficient freedom. A little mild opening medicine, as salts, cream of tartar, or senna-tea, every other day, will be found useful; and after the abscess has burst, or been opened, washing the mouth twice or thrice a day with an astringent lotion will tend materially to make the cure permanent. Twenty grains of sulphate of zinc, dissolved in half a pint of rose-water, will be a suitable lotion for this purpose.

Mammary abscess. An abscess seated in the female breast, affecting chiefly women after confinement, or during the period of suckling. Previous to the birth of the child, a great quantity of blood is sent to the womb to supply materials for the growth and nourishment of the embryo; but when the child is born, and requires food of another sort, the blood then flows in great quantity to the breasts, and occasions, in some constitutions, a smart febrile attack, known by the name of the *milk-fever*; and, in others, severe local pain

of the breasts, followed by suppuration. Independent of the milk-fever, inflammation and abscess of the breast may arise from checking the flow of milk at too early a period, from exposure to cold, fright, mental anxiety; too great motion of the arm, when the breast is large and distended; blows, and pressure from tight clothes. But the abscess of the breast often occurs, when no obvious cause can be assigned. The pain arising from the inflammation of so large and tender a structure is very great, and occasions very severe distress. The breast sometimes puts on the appearance of several distinct swellings, has a knotted feel, and the pain often extends to the armpit. At first, we must endeavour, if possible, to put a stop to the inflammation, and to prevent its coming the length of suppuration. This is to be done by giving frequent doses of cooling laxatives, as of salts; by applying cold or tepid fomentations to the breast, and by attempting to have the milk regularly drawn off. We are also to apply leeches in great numbers, and to rub the breast gently with a little warm oil. The diet is to be very spare and cooling.

If we fail in relieving the inflammatory state, our next endeavour is, to promote the suppuration by poultices, and to discharge the matter, when ripe, by a large opening. When a suppurating breast is left to itself to break, it too frequently allows the matter to work itself into various winding holes, and to make its way out by different openings, occasioning a long and wasting discharge; to prevent this, there is no method so sure as making a large and free incision, and thus lay open, through all their depth, the hollows from which the matter flows. When a hardness remains in the breast, after inflammation and abscess, it is to be dispersed by frictions with camphorated oil, or mercurial ointment; attention being paid to the avoiding of external injury; and the general health and state of the bowels are to be attended to.

Lumbar abscess. A collection of

matter forming at the loins internally, and making its appearance along the psoas muscle, at the upper part of the thigh. At the commencement of the disease, there is some difficulty in walking, and an uneasiness is felt about the loins; but, in general, there are large collections of matter formed without much previous pain, and without any indication of disease, till it begins to show itself by an external swelling.

It is sometimes connected with disease of the bones of the vertebral column; but in many cases there is no such combination. It very often occurs in scrofulous constitutions, without any obvious cause, and it may proceed from blows on the back and loins, and from exposure to cold and damp, as by lying on the ground when wet.

If we have any symptoms to lead us to suspect the complaint coming on, we are to endeavour to prevent it, by keeping the patient at rest, and by the application of leeches or cups to the loins, hy blisters, and purgative medicines. The great difficulty in the treatment of this disease is, to determine on the mode of opening the abscess, when we have decided that such a measure is proper. It is found by very general experience, that when these large collections of matter are freely opened, and admission is given to the external air, very terrible consequences ensue; and that the patient suffers from hectic fever, wasting discharges of matter, and, at length, death is caused. A plan which has been adopted with success for opening these abscesses, is, to make an oblique puncture large enough to discharge the flakes of matter and clots of blood from the cavity, then to cover the wound carefully, and get it to heal as quickly as possible. When the matter collects again, a fresh opening is made, and the same methods pursued as before. When the abscess has been opened, or when it has burst, which we must always endeavour to anticipate and prevent, the strength of the patient is to be supported by nourishing diet, by a liberal allowance of bark, and, in some cases, the use of

wine; at the same time, moderating the hectic fever, by sponging the body with vinegar and water, and by paying a proper attention to the action of the stomach and bowels.

ACHILLES' TENDON.

The Achilles' tendon, or strong sinew which is continued from the fleshy part of the back of the leg to the bone of the heel, is sometimes broken by the action of the muscles, in dancing, leaping, and other violent exertions. The patient seems to hear a crack as of a whip, or as if he had broken a nut with his heel. Sometimes awkward reapers cut the tendon of their companion's heel with the sickle. When this tendon is cut or ruptured, the power of extending the foot is lost, and the patient becomes lame. The cure depends on keeping the broken ends together, by a contrivance which bends the knee, and extends the foot or ankle joint. The following, which was used in the case of the first, by Dr. Monro, will give some idea of the contrivance alluded to: a foot-sock, or slipper, was made of double-quilted ticking, from the heel of which a belt or strap projected, of sufficient length to come up over the calf of the leg. A strong piece of the same material was prepared, of sufficient breadth to surround the calf, and this was fastened on with lacings. On the back part of this was a buckle, through which the strap of the foot-stock was passed, so that the foot could be extended, and the calf brought down at pleasure. A less complex apparatus, and one which answers equally as well, is a splint curved to the shape of the parts, and firmly bound on the front part of the foot and leg, in such a manner as to bend down the toes as much as possible; by this means the heel being raised, the lower portion of the divided tendon is brought into contact with the upper. It must be remembered that the bending of the knee joint is partly performed by the upper part of the muscles of the calf, which are inserted into the ends of the thigh-bone, and, therefore, if the knee

be stretched, this will tend to draw asunder the separated portions of the injured tendon. Much caution is requisite for many weeks, or even months after the accident; and even through life, it is prudent to abstain from all violent and irregular exercise.

ALVINE CONCRETIONS.

Surgical writers have recorded many instances, in which concretions of various sizes, and producing a series of very bad and even fatal complaints, have been formed around plum and cherry stones in the alimentary canal. The knowledge of the dangerous consequences which may ensue from swallowing such indigestible bodies, cannot be too extensively diffused; for it is certain that this pernicious habit of children and thoughtless persons, is by no means uncommon, and must be a more frequent occasion of ill-health, if not of death, than is generally supposed.

The symptoms induced by the lodgment of concretions, of the above kind, in the bowels, are of a formidable description: severe pains in the stomach and bowels, diarrhœa, violent vomitings of blood and mucus, a discharge of thin fetid matter from the rectum, a difficulty of voiding the excrement, an afflicting tenesmus, extreme emaciation, and debility.

The concretions may become so large as to be incapable of passing onward to the rectum, and, of course, occasion fatal complaints.

Sometimes, patients ultimately get well by voiding the concretions, either by vomiting, or stool. Mr. Charles White gives us an account of some such instances; in one, fourteen concretions on plum-stones were discharged from the anus; in another, twenty-one similar bodies were ejected from the stomach.

That gentleman concludes some interesting cases, with warning practitioners, and mankind in general, of the great danger of swallowing fruit-stones; and he doubts not, that many persons have lost their lives from this

cause, when the disorder has not been understood, but been mistaken for the colic.

Whenever fruit-stones are inadvertently swallowed, a brisk purgative, as of castor oil, should be given, in order to procure, without delay, their discharge.

ANEURISM.

Aneurism signifies a soft swelling, having a pulsating motion, corresponding to the beating of the arteries. To the ignorant observer, it does not seem a very formidable thing to be afflicted with a small colourless swelling, free from pain, and not hindering the motion or the functions of any part; but the surgeon knows that it is the commencement of a process, which, unless counteracted by the most skilful treatment, must almost infallibly terminate in the destruction of the unhappy sufferer. He knows that this tumour proceeds from a diseased artery; that the unremitting activity of arteries presents obstacles to the recovery, which unassisted nature can seldom overcome; that the tumour must continue to exist, nay, to increase, till, finding its way through the skin and other coverings, the blood bursts forth, and thus ends the life of the patient.

Arteries have three coats: an internal, or smooth coat, along which the blood moves; a muscular coat; and outermost of all, a cellular coat. It may happen that the whole of the three coats may be enlarged, and the calibre of the artery increased; this is considered by surgical writers, as the only *true* aneurism; but it more frequently happens, that from some disease of the inner coat, a piece is ulcerated and absorbed from it, and the constant force of the blood divides the fibres of the muscular coat, and leaves nothing but the cellular coat to contain the blood. This more common form of the disease, is called *false* aneurism.

This disease of an artery may be in such a situation as to present no external tumour to give any alarm; it may be within the cavity of the chest, or of

ne belly; and the same fatal process will go on, till the blood, bursting into some of these cavities, will be as much out of its due place, and as fatally lost, as if it had been spilt on the ground. There are some situations where aneurisms occur more frequently than in others, and from their situation they derive their names. A few of these shall be enumerated: 1. The *popliteal aneurism* is that which is seated in the ham, and is one of the most frequent that occurs. 2. The *carotid* in the neck. 3. The *axillary* in the arm-pit. 4. The *subclavian*, in the artery under the collar-bone. 5. Internal aneurisms of the *aorta*, the large arterial trunk issuing from the heart, frequently occur.

Several methods have been proposed for the cure of aneurism, some constitutional, and others local: the principal one acting on the general system is that of extreme low living, and a state of perfect rest, which is said to have succeeded in some instances. The only way in which it can act, is by diminishing the quantity and force of the blood, and so allowing the diseased part of the artery to heal; but it has not often been successful. It is now universally allowed that a cure of aneurism is rarely to be expected, unless by some means or other the canal of the artery be obliterated in its course, nearer the heart than the tumour. Sometimes this takes place spontaneously, from the tumour occasioning a pressure in so favourable a part of the artery, that it occasions an adherence of its sides; but we do not know when to expect this, and the fewness of the instances in which it has happened, does not warrant our waiting for it in any case. We must put in practice the methods which the well directed observation of modern surgery has contrived; and the best way of effecting the obliteration of the canal of the artery, is by tying a fine ligature tightly round the vessel. The effect of this is to cut through the two inner coats as if a knife had done it; inflammation is excited, a clear fluid called coagulable lymph is thrown out, and by this means a plug is formed

which prevents the blood from going any further along that portion of the artery. The pulsation of the tumour is immediately stopped; the limb, for a short period, becomes colder, but in no long time regains its heat, or increases it. The continual action of the heart and arteries enlarges the smaller collateral vessels, and this enlargement continually going on, renders them capable of supplying the limb with blood. The tumour gradually diminishes by the action of the absorbent vessels, which remove out of the system what is decayed or useless, so that it gives no farther trouble.

When an aneurism is out of the reach of an operation, life may be prolonged by occasional bleedings, rest, a spare diet, and avoiding every thing that would too much stimulate the action of the heart and arteries.

ANIMATION, SUSPENDED.

A total suspension of all the mental and corporeal functions may arise. 1. From suffocation produced by hanging or drowning. 2. From the inhalation of carbonic acid, or some other noxious and irrespirable exhalation. 3. From a stroke of lightning or electricity; and, 4. From intense cold.

In death from hanging or drowning, the face is turgid and suffused with livid blood, especially in the former case. When it arises from the inhalation of irrespirable gases, the countenance is pallid; when from a stroke of lightning or electricity, it is also pale, the limbs being flexible, and the blood incoagulable; and when produced by intense cold, the countenance is pale and shrivelled, and the limbs rigid.

In the first variety, or *asphyxia from hanging or drowning*, the chief immediate cause is suffocation, or a total obstruction to the respiration. Some physicians have considered apoplexy to be the principal cause of death in hanging, and others have said, that it is owing to the dislocation of one of the vertebræ of the neck, which, in being driven out of its place, presses upon the spinal marrow, and thus insures

immediate dissolution; but these opinions are now clearly ascertained to be erroneous, and the great majority of professional men of the present day, regard the obstruction to respiration, to be in nearly all instances the chief, and in very many examples, the only cause of death both in hanging and drowning. In hanging, the aperture of the windpipe is closed against the entrance of air by the pressure of the eord round the throat, and in drowning, by a rigid spasm of its muscles. In drowning, it was formerly supposed that the suffocation was produced by a rush of water into the cavity of the lungs; but it is now well ascertained, that in many cases of death from submersion, not a drop of water enters into the lungs; that where it does enter, the quantity is, for the most part, very small; and that, whether small or large, it passes the windpipe after death, instead of before it, and consequently cannot be a cause of death.

In the second variety of suspended animation, or *that from an inhalation of noxious vapours*, death, in many cases, takes place instantaneously, and from an utter destruction of the irritability and sensibility of the nervous system. In this case, there is not only a cessation of the action of the heart from the want of the necessary stimulus of the blood afforded by the lungs, but there seems a total abstraction of the nervous power, and this as completely in one part of the frame as in another.

The most fatal gases of the description before us, are the carbonic acid, hydrogen, nitrogen, and several of a more compound kind, which are thrown forth from putrefying animal and vegetable substances, and especially from cemeteries, on opening fresh graves. The most common of these gases is the carbonic acid, which is chiefly found as a suffocating vapour, in close rooms where charecoal has been burnt; at the bottom of large beer-casks or wells; in cellars where a large quantity of wine or other liquors is in a state of fermentation, and in many

natural caverns on the earth's surface. As it will not support flame, the common and easiest test, where it is suspected to exist, is that of a lighted candle, which is well known to be extinguished immediately, if this gas be present in a quantity sufficient to be injurious to respiration.

In the third variety, the whole system appears not so much rendered irritable to stimulants, as to be suddenly exhausted of its entire stock of nervous power, like a Leyden phial upon an application of the discharging rod; in consequence of which the limbs are flexible and the blood does not coagulate.

Asphyxia, from intense cold, is always preceded by an insurmountable desire to sleep, which the utmost exertion of the will is unable to overpower. The sleep is, in most cases, fatal, and becomes the sleep of death. Extreme cold being one of the most formidable sedatives, carries off the heat of the body far more rapidly than it can be recruited, exhausts it of its irritability and sensibility, and death thus insensibly takes place.

When suffocation has been produced by drowning, the two grand means by which we are to operate, are those of warmth, and inflation of the lungs. The body should be immediately and quietly conveyed to a warm and dry situation, and rubbed all over with moderate stimulants, as flour of mustard, mixed with an equal quantity or more of common flour, or some warm embrocation, as soap or camphor liniment, with a small addition of oil of turpentine; while the nostrils are plied with volatile ammonia, and the eyes exposed to a strong light. But as a restoration of the action of the lungs is chiefly and directly to be aimed at, a full expiration of warm air from the lips of a bystander should be repeatedly forced into the patient's mouth, and his nostrils held close, to prevent its escape by that channel. Inflation may also be attempted by a pair of common bellows, or what is far better, if it can be readily procured, by a pair of bellows com-

municating with a pipe, introduced through the nose or mouth into the windpipe, or, as some have judiciously recommended, into an aperture made between the rings of the windpipe. If the lungs cannot be fully inflated by the other means advised, this aperture in the windpipe should invariably be made, and without much loss of time, since effectual inflation is more certainly secured by it than any other method, and the operation, if carefully performed, is quite safe. If the efforts at inflation are too violent, or unskilfully performed, rupture of the lungs may result. Injections of assafœtida and oil of turpentine, or other stimulants, mixed with warm water, should, at the same time, be thrown into the rectum. And if it be possible, some warm cordial, as volatile tincture of valerian, volatile alkali, brandy and water, or the compound spirit of lavender, should be conveyed into the stomach, by means of a canula, or catheter; or what may probably in this case answer better, by a piece of sponge impregnated with one of these fluids, fixed to the end of a small rod of whalebone; for the sides of the stomach may be, so to speak, mopped round, by the sponge thus charged, and stimulated in every direction.

Blood-letting was formerly recommended in these cases by many able physicians, and is still a common resource with the unthinking; but a very large majority of the best informed practitioners of the present day dissuade from its employment in the first instance. In the generality of instances, blood-letting is a mean of little efficacy; in many, it cannot fail to be injurious. It must not be forgotten, that it is one of the most direct and powerful means of lessening the heat of the body, and the force of the vital principle, and is, therefore, clearly opposed to the object which we have to accomplish in the present case. It ought, at least, never to be resorted to, unless by the direction of an intelligent medical practitioner.

A few years since, it was also the

practice to administer tobacco injections, either in the form of infusion or smoke; but this is now universally and justly condemned; for tobacco, being a powerful narcotic and sedative, has, like blood-letting, a direct effect in depressing the energies of life, and is, therefore, invariably injurious under the present circumstances.

Returning life is first usually discoverable by the symptoms of sighing, gasping, twitching, slight palpitation or pulsation of the heart; in effect, by a weak action in most of the organs. Our efforts should here be redoubled, for the feeble spark still requires to be solicited and nourished into a permanent flame, and has often disappeared from a relaxation of labour. A spoonful or two of warm wine, or wine and water, should now be given by the mouth, as soon as the power of swallowing is sufficiently restored; and should be shortly succeeded by light, warm, and nourishing food of any kind, with a well-heated bed, and perfect tranquillity.

In attempting the recovery of *those who have hung themselves*, the same means are to be resorted to. Here, bleeding from the jugular vein may be more frequently found necessary than in the drowned; since, in hanging there is a greater tendency to apoplectic symptoms, than in drowning; yet, even here, the quantity abstracted need not be large, and should rarely exceed six or eight ounces.

How long the living principle may, under the foregoing circumstances, remain attached to the animal frame, and afford a chance of recovery, is not ascertained with any degree of accuracy; it exists, in many instances, however, longer than is generally supposed; and there are some undoubted cases of recovery, both from drowning and hanging, after such a lapse of time, as ought to teach us the useful lesson of the necessity of not despairing too early. If the submersion has not exceeded five minutes, persons will be usually found to recover without much difficulty. After a quarter of an hour, or twenty minutes

recovery is not common; and after half an hour, it is nearly hopeless. Yet, of twenty-three instances, of the recovery of drowned persons at Paris, one was restored to life after having been three-quarters of an hour under water; four, after having been half an hour; and three, after a quarter of an hour. Mr. Glover, a surgeon of London, relates the case of a man who was restored to life after twenty-nine minutes' hanging, and continued in good health for many years after; but his exertions for the recovery of this person were continued, unremittingly, for four hours and a half, before any signs of returning life were visible.

In a suspension of animation, arising from the inhalation of noxious airs, the patient, if any degree of sensibility remains, should be freely exposed to the open air, instead of to a heated atmosphere, as in the preceding variety; and, if he can swallow, acidulous liquids, as lemonade, &c., should be given him. If insensible, cold water should be largely dashed on his face; strong vinegar, and especially aromatic vinegar, be rubbed about his nostrils, and held under them, and stimulating clysters of assafœtida, or oil of turpentine, &c., mixed with water, be injected. The lungs should be inflated with the warm breath of a healthy man, as advised under the preceding variety, or with oxygen gas. The inflation with oxygen gas is highly to be recommended.

But it appears that the employment of the concentrated chloride of soda, or of lime, is the most speedy and certain means of restoring persons who have been suffocated with carbonic acid gas, in any shape or combination, as it arises, for example, from burning charcoal, or from accumulated filth, or is encountered in descending into wells or cellars, or in opening extensive public sewers, &c. The patient should be brought into the open air, and a bottle of the concentrated chloride held close to his nostrils, so as to cause him to inspire it, which should be continued until the patient has fully regained his

consciousness, and the power of walking, which he should be kept doing for some time in the open air. Acidulated liquors may, with propriety, be given at the same time.

A proper use of electricity is also, in many instances, found very serviceable. The fluid should be transmitted along the channel of the nerve, from the seat of the phrenic nerve in the neck, to the seat of the diaphragm, or that of the par vagum and great sympathetic nerve, immediately under the sterno-mastoid muscle. Little advantage is likely to accrue from passing the electric aura across the chest, directly through the heart and lungs, which is a common practice.

The general plan of medical treatment proper, when *animation has been suspended from a stroke of lightning*, has been detailed under the first variety. Stimulants of the most active kind should be resorted to, without loss of time, as volatile alkali, and the stimulating liniments, externally; and brandy, and volatile tincture of valerian, internally. But of all stimulants, that of electricity seems to be especially called for in the present case. Dashing cold water over the patient's body, particularly the head and face, will, in many cases, if immediately resorted to, rouse the patient, and supersede the necessity of all other remedies.

In the treatment of a person who has been so long exposed to extreme cold, as to be in a torpid, and apparently lifeless state, great caution is necessary in the employment of warmth, since its too quick and free application will undoubtedly produce mortification, and endanger life. The body should be first rubbed all over with snow, or very cold water, and after active friction of this kind has been continued for a quarter of an hour, it should be wiped perfectly dry, and submitted to the friction of warm hands, several persons being engaged in the process simultaneously. The body ought not, in the first instance, to be brought into a warm room; but after the friction with cold water has been continued for

the period specified, and the body been wiped dry, then removal will be very proper and necessary, and it should be laid in flannel. Warm air may then be breathed into the lungs, and a little lukewarm wine and water conveyed into the stomach. Persons who have been buried in snow for a considerable time, or so exposed to intense cold, as to be deprived of animation for some hours, have been perfectly restored by these means; and it would be highly criminal in any professional man to relax his exertions to recover such persons, until his efforts had been strenuously exerted without effect for several hours.

In the treatment of infants who have been overlayered, or otherwise suffocated by the carelessness or inattention of their nurses, and of persons who suddenly expire in fainting fits, precisely the same plan should be pursued as is laid down under the first variety, or suspended animation from drowning. Here, as in suffocation from drowning, the two grand agents of restoration are warmth, and inflation of the lungs; and if these means are resorted to with *judgment* and *perseverance*, many of such cases will terminate favourably, which would be lost under a less vigorous and patient treatment.

ANUS, DISEASES OF THE

The principal diseases of the anus which call for surgical aid are, fistula, prolapsus, and piles.

FISTULA. Fistula is a name applied to a sore which runs some way under the skin, and discharges a thin matter from its sides, which are converted into secreting surfaces. A fistula may occur in any part of the body, but it is most frequent and troublesome in the neighbourhood of the anus, where one or more of such sores often run a long way under the surface, and penetrate within the gut. This is a very disagreeable, though not a dangerous affection, and people are naturally very anxious to get rid of it. It in general results from a neglected inflammation or boil, seated about the anus; which

being allowed to form mater, the latter, from the almost constant motion in which the parts are kept, is caused to burrow deep in the loose cellular membrane with which the anus is surrounded. When a fistula has been formed, the cure consists in making such an incision through the internal surfaces of the fistula and neighbouring substance, as shall induce a degree of inflammation, and so cause the sides to grow together, and obliterate the fistula. When the sore communicates with the gut, the surgeon must pass his finger into the gut, and use it for a director to introduce a cutting instrument, by which he is to lay open the whole extent of the fistula; and then by proper dressings to encourage such a suppuration as shall end in a complete union of the parts. The operation is not particularly dangerous or painful, but in unhealthy constitutions, as in those which have been broken down by intemperance, or in old age, there is such a degree of inflammation liable to be produced by it, as to bring the patient into very great danger. Fistula is sometimes connected with diseases of the bladder and other neighbouring parts, and this adds to the inconvenience and danger. There are many diseases that may take place near the anus, that are apt to be dreaded by the ignorant as fistula, but the true fistula is as we have described it.

PROLAPSUS OF THE ANUS. When a portion of the rectum is protruded out of the anus, in a preternatural degree, the disorder is termed *prolapsus ani*. Sometimes, only a very small part of the gut is thus displaced; on other occasions, there is a very considerable portion of it.

The most common cause of this disease, is the too frequent employment of purgatives, especially of aloetic medicines, the action of which particularly affects the large intestines. The same thing results from small worms, known by the name of ascarides, and which lodging about the lower part of the rectum, occasionally cause excessive irritation. Habitual costiveness; long-continued diarrhoea; chronic dysente-

ry; hemorrhoids, or piles; in a word, every thing, which, by stimulating the rectum, excites too violent an action of this intestine, may induce the complaint under consideration.

There are numerous instances in which a prolapsed portion of the rectum has remained, for a long while, unreduced; and in which, notwithstanding such neglect, no serious consequences have ensued. But, we ought never, on this account, to omit doing every thing in our power for the immediate replacement of the intestine. Authors of surgical works have, not uncommonly, recommended fomenting the prolapsed part with emollient and astringent decoctions, before making an attempt to reduce it. They even advise the operator, for the purpose of succeeding with more ease, to cover his fingers with linen, smeared with wax and oil. But, all such preparations are useless; and, when a surgeon is called to a patient afflicted with prolapsus ani, the greatest service he can render, is to put back the displaced part, as quickly as possible, into its natural situation, without leaving the intestine exposed to the dangerous effects, which may arise during the time wasted in employing fomentations, &c. Also, as much greater manual dexterity can be made use of, when the fingers are perfectly uncovered, than when they have greasy gloves on, it is best not to follow the latter method. However, if it should be judged proper to cover the hands with any thing, a piece of fine cotton will best answer the purpose.

The patient being in bed, lying upon his side, or, what is better, on the abdomen, while his buttocks are raised rather higher than the rest of the body, the surgeon is to make strong, but equal pressure, with the palm of his hand, on the lower portion of the prolapsed intestine. By continuing such pressure, the intestine may, in general, be easily reduced. But if this plan should not suffice, the upper part of the protruded intestine must be compressed with the fingers of one hand, while the lower part is pressed upward by the palm of

the other one. In this way, we are almost sure to succeed. It is true, that if, in consequence of having too long delayed the reduction, or from some other cause, the gut has become much swollen and inflamed, it will be impossible to reduce the part, before such symptoms have been subdued. For this purpose, it may be proper to take some blood from the patient, in such quantity as his strength will allow, and to apply leeches to the inflamed gut; the latter may also be fomented with a warm solution of the acetate of lead. When the inflammation and swelling have been diminished by these means, there will be no difficulty in replacing the parts, by pursuing the plan already explained.

The greatest difficulty is not the returning of the intestine, but keeping it in its place. The latter object often gives a great deal of trouble. For, after the bowel has frequently descended, the sphincter sometimes becomes so weakened, that it can no longer keep the part supported. Hence, the complaint not only recurs whenever the patient goes to stool; but, even whenever he walks, or places himself in an erect posture.

Different bandages have been devised for supporting the anus after its reduction. But it is not an easy matter to invent one, which is in every respect adapted to what such an inconvenience requires. A compress of soft linen, doubled several times, is usually applied to the anus, and supported in this position by means of a bandage. In many cases, this method of keeping up the intestine answers very well.

When the intestine is protruded at the time the patient is at stool, the part is to be immediately replaced. This the patient should accustom himself to do, without assistance, and then the bandage is to be applied.

To obtain relief from this disagreeable, and often dangerous disease, various means have been proposed. In the first place, by a well regulated diet, proper exercise, and such remedies as the case may demand, it is important

to remove any disease of the bowels under which the patient may labour. A lax condition of the bowels is all important, and to obtain this, where nothing is present to forbid its use, a diet of rye-mush and molasses is generally sufficient. The patient should be cautious not to strain when at stool; and if a child, should be made to evacuate his bowels in an erect, rather than in a sitting posture. When there is great irritability of the rectum, injections of cold water, and at night an anodyne injection of thin starch, with a quantity of laudanum adapted to the age of the patient, will often be beneficial. Astringent injections, particularly such as are composed of an infusion of gall-nuts, or oak bark, are also, frequently, very serviceable. In many cases, good effects will result from dashing cold water daily over the hips and buttocks.

PILES. Hemorrhoids, or piles, consist in a diseased state of the blood-vessels of the rectum and anus, attended with tumours, and generally with a flow of blood, which often takes place at stated intervals. The tumours, forming the piles, are either seated within the anus, or at its verge; and occasionally, one tumid ring surrounds it completely. When no blood is discharged from these tumours, they are popularly denominated blind piles. These are, in fact, portions of the external edge of the gut, strongly injected with blood, and in a state of chronic inflammation. This state of engorgement and inflammation produces the hemorrhage, with which piles are so generally attended, and thus gives temporary relief by evacuating the overloaded vessels. Piles are sometimes preceded by a sense of weight in the back, loins, and lower part of the abdomen, together with uneasiness of the stomach, flatulency of the bowels, and other symptoms of indigestion. On going to stool, a pungent pain is felt in the fundament, and small tumours are found to project beyond its verge. If a quantity of blood is discharged from them, considerable relief from the pain and un-

casiness is obtained. If, however, no hemorrhage occurs, the patient experiences great torture every time he goes to stool, and feels an inconvenience when sitting down on any hard seat. Frequently, however, the symptoms are less severe, but nevertheless very troublesome, as the patient is, from time to time, annoyed by a pile becoming engaged within the sphincter of the gut, and causing intense pain; considerable uneasiness is, also, frequently suddenly experienced, when the patient is walking, or has been standing long. Piles may sometimes continue for a long time, without the general health of the patient being much affected, while, in other cases, particularly in weak and irritable constitutions, the health suffers considerably; the face becomes pale, the eyes appear sunk from the dark circle which surrounds them; the functions of the stomach are impaired; the feet swell, and there is a sensation of coldness, with shivering, experienced by the patient, with a hard, quick pulse, dryness of the mouth, thirst, &c. The piles also occasionally cause abscesses to form in the vicinity of the anus, terminating in fistula. Piles are not unfrequently met with in persons predisposed to, or labouring under consumption; they are a frequent accompaniment also of chronic diseases of the liver, indigestion, &c.

The general causes of piles are long continued sedentary habits; food of a stimulating or indigestible kind; habitual costiveness; hard riding on horse-back; the abuse of purgatives, especially those containing aloes; intemperance; the pressure of the pregnant womb, &c.

The blood discharged by piles is most generally of a brilliant red, excepting in a few rare cases, in which the veins about the anus are dilated, and accidentally burst; when the blood is dark, and often mixed up with the feces.

Those individuals who have been for a long time subject to piles, especially such as are attended with a discharge of blood, should be extremely cautious not rashly to suspend the evacuation, as this may be productive of dangerous,

or even fatal consequences; apoplexy, spitting or vomiting of blood, violent fevers, inflammations of the abdominal viscera, or, in the predisposed, consumption of the lungs, have been known to result almost immediately upon an imprudent suppression of the hemorrhoidal flux. When, however, they are strictly a local disease, unattended with other affections of the system, or any predisposition to disease in the head, or chest, and especially when they are of recent origin, by a proper treatment they may be removed, not only without any injury, but with much benefit to the patient.

In the commencement, the symptoms attendant upon piles are of an inflammatory nature, and in the young and plethoric, require bleeding from the arm, or by cups, from the lumbar region, a low spare diet, and perfect rest upon a settle or sofa. The bowels should be kept regularly open by means of equal parts of sulphur and cream of tartar, in the dose of a tea-spoonful, three or four times a day, or by a diet of rye-mush and molasses. In regard to the local treatment; in some cases, a judicious application of leeches to the inflamed tumours about the anus, will be advisable, followed by cold applications, as compresses wet with cold water or lead water, and injections of cold water into the rectum. Even when leeches are not considered advisable, the application of cold water will be found beneficial. When the discharge of blood is very considerable, which, however, is seldom the case, it may require for its suppression a compress to the bleeding pile, if it be external; or if internal, the insertion into the anus of a portion of a wax-candle, or of the gut of some animal, subsequently injected with cold water and tied. When the disease has been recent, and the constitution sound, by these means, with a careful avoidance on the part of the patient, of the exciting causes by which they were produced, and a well regulated diet and regimen, the return of the piles may, in general, be prevented. But when the disease has been

of long standing, the general system debilitated, and the extremity of the rectum is found to be surrounded with several firm, indolent, but painful tumours, it is important for the surgeon to attempt their removal by local means. These consist of certain astringent applications, compression, or a surgical operation. Astringent applications have been often found highly beneficial; one of the very best is, perhaps, the gall ointment; but a strong solution of sugar of lead, or of white vitriol, or a decoction of oak bark, as a wash, may likewise be used. In Italy, the pulp of gourds is a common application to piles. Cataplasms of baked apples, and the pulp of rotten apples or lemons, have also been highly recommended. In some cases, puncturing each pile with a lancet will occasionally cause the entire removal of the disease. Compression is chiefly resorted to when the piles are seated within the anus; an instrument called a rectum bougie, is employed to produce the necessary compression. To prevent the descent of the piles, and their consequent strangulation by the sphincter, it has been recommended to apply layers of wetted lint, gradually increasing in breadth, until their surface is nearly on a level with the buttocks. When a surgical operation is decided upon for the removal of piles, they may be cut off by the knife or scissors, or strangulated by a ligature passed around them at their base. The comparative advantages of these two modes of operating, and the particular cases to which one or the other is especially adapted, must be left entirely to the judgment of the surgeon.

When a sudden or imprudent suppression of the hemorrhoidal flux is followed by violent head-ache, pain of the chest or abdomen, the premonitory symptoms of apoplexy, or a discharge of blood from the lungs or stomach, the remedies are bleeding from the arm; active purgatives by the mouth, as aloes, soap and gamboge combined; purgative injections into the rectum; warm fomentations to the anus, either by

poultices or by the patient sitting over the steam of hot water. If these means fail, leeches should be applied around the anus, and the patient's feet and legs immersed in a hot bath, to which a tea-cupful of mustard has been added. The utmost attention must for some time be paid by the patient to his diet and regimen. His food should be light and spare; his drink water; and he should use daily gentle exercise in the open air.

BEE STING.

Sometimes very painful symptoms arise in consequence of a sting from a bee; such as great swelling extending to the neighbouring parts, and even over a whole limb, thirst, restlessness, and other feverish symptoms. When an enraged swarm attacks a person, the consequences may be very alarming indeed. Such accidents are to be treated by cooling local applications; as solutions of hartshorn in cold water, in the proportion of twenty grains of the carbonate of ammonia to six ounces of water, or that which is commonly sold by the name of hartshorn; or vinegar and water, may be applied; or the muriate of ammonia (*sal ammoniac*) dissolved in water, or lime-juice. Laxative medicines of the cooling kind, as Epsom salt, Rochelle salt, and cream of tartar, are to be given, and the patient is to be kept at rest in a cool place, and on a spare diet.

BONES, DISEASES OF THE

The bones are liable to fracture, caries, exfoliation, necrosis, and softening.

FRACTURE. A broken bone is said to be *fractured*. Fractures are either simple or compound. A fracture is termed simple when the bone alone is broken, without any accompanying wound of the skin, muscles, or soft parts; and it is called compound, either when the same violence which has broken the bone has injured the soft parts, or the bone itself has been pushed through any of them. A fracture being compound, adds very much to its

danger; and the degree of danger is to be estimated by the violence which inflicts the injury, and the extent or importance of the soft parts injured. When a person has, either by a fall, a bruise, or any other accident, broken a bone, great care should be taken in removing him from the place of the accident; he should be carried in the easiest manner possible, and this seems to be by the strength of men, while the patient is lying on a flat board. A carriage, or even a litter with springs, is not so good. The patient, unless under the influence of drunkenness or insensibility, generally finds out the position which is easiest for himself. The plan of cure, in simple fractures, is to place the injured limb in such a way that the broken ends of the bones may be kept as near each other as possible; when in this position they are retained at perfect rest, a certain matter is thrown out from the ends of the bone, which gradually hardens, and the bone becomes as strong as before. To keep the limb in the proper position, and at rest, it is to be firmly bound with splints, which are flat pieces of wood or tin, lined with cotton or quilt to keep the soft parts from being chafed; the splints are to be fastened on the limb with tape or rollers. When the fracture is compound, the state of the soft parts requires attention. If there is much crushing of the bone, so that it is broken down, as it were, into fragments, or when there is much laceration of the soft parts, it is very unlikely that the cure will go on well; and it is generally necessary at once to amputate the limb, in order to preserve life. When the surgeon deems this to be absolutely necessary, it is better to perform the operation without delay, as there is a likelihood of fever and other symptoms of great constitutional irritation soon coming on, which will probably render it impossible to perform the operation. It may appear a very harsh and rapid mode of proceeding, to propose at once cutting off a limb which has been subjected to a severe accident; but it affords the only

probable means of preserving life, and in that view it is really merciful. If the compound fracture have a sharp projection of bone, pushing through the skin, it will be impossible to place the limb in a favourable position for healing, till this impediment is removed by the bone-nippers. A blood-vessel may be wounded, and this must be secured either at the place of the accident or nearer the heart, and the blood cleaned out from the wound; the limb is then to be secured in the usual way. The treatment of fractures requires a very great amount of judgment, founded upon a knowledge of the anatomy of the parts, the mechanical means by which the ends of the fractured bone are most certainly kept in contact and at rest, as well as of the curative processes by which the organic life of the part is enabled to repair the injury inflicted and cause the fractured extremities to unite. Hence, in all cases of fracture, the attendance of an experienced surgeon is absolutely necessary.

We do not think it necessary to detail the symptoms and cure of particular fractures, but shall mention a few circumstances respecting fractures of the skull. Every injury of the head, more especially those inflicted with such violence as to fracture the skull, is to be considered as of an alarming nature; yet the mere circumstance of a fracture, and even a pretty extensive one, is not to be considered as the most formidable concomitant. Unless the soft parts are very much torn, there may be a long fissure of the bones of the skull, without much danger; but if there is not only fracture, but also depression, or beating in of the skull upon the brain, then the danger is unquestionably more urgent, and those measures should be pursued which will hereafter be pointed out under injuries of the brain.

CARIES. The rottenness or partial mortification of a bone is termed caries; this disease being to the bone what a foul ulcer is to soft parts. This happens, when the bone is deprived of its investing membrane called the periosteum. The bone then becomes yellow, brown,

and at last black. As the disease advances, the bone is corroded, and discharges an acrid matter, which inflames and ulcerates the neighbouring soft parts.

There are various diseases of which caries of the bones forms a symptom, as syphilis, scrofula, scurvy; and it may also be the consequence of abscesses, wounds, or contusions.

Its cure is to be attempted by whatever is proper to be done for the original disease, or exciting cause; and local applications are to be used to promote what is called the exfoliation or scaling off of the diseased bone. The actual cautery, preparations of mercury, spirits of wine, or other stimulating applications, are sometimes necessary.

Exfoliation signifies the separation of a dead piece of bone from the living. Exfoliation takes place soonest in bones which have the fewest cells, and whose texture is the closest. Before any part of a bone can be thrown off by exfoliation, it must be dead. But even then, till the process of exfoliation begins, the bone adheres as strongly as ever, and would remain for years before it could be separated by putrefaction alone. A dead bone acts on the system in the same manner as any extraneous body. It stimulates the adjacent living parts, in consequence of which such a process is begun, as must terminate in its being thrown off. Neither caustics, nor the actual cautery hasten exfoliation; they only produce death in a part of the bone, which is the first step towards exfoliation. Exfoliation is not a necessary consequence of a bone being laid bare, and being deprived of its investing membrane. If the bone be in other respects healthy, it may heal without the smallest exfoliation being thrown off, especially in young subjects. But if caustic or stimulating applications be made use of, the circulation in the surface of the bone will be disturbed and destroyed, and that part will be separated and cast off by the process of exfoliation. The best mode of attempting to prevent an exfoliation from occurring at all in a bone

that has been exposed by a wound, is to cover the part again, as soon as possible, with the flesh which has been detached. When the exposed bone can not be covered, it should be dressed with the mildest and simplest applications, with plain lint, or lint spread with spermaceti ointment.

NECROSIS. By necrosis is meant the entire death of a bone, or part of a bone, the dead bone being replaced by a new one. They who are not conversant with the fact, would never have expected that a bone so large as the thigh bone or the shoulder-blade would die, and be replaced by a new growth, and the old one taken away by absorption, without the feeling or motion of the limb being impaired. The following are the symptoms of necrosis. At its commencement, a deep-seated acute pain is felt, which is soon followed by a rapid enlargement of the parts along the course of the bone. An inflammation, and one or more abscesses take place, which do not heal, but become fistulous sores. The openings are generally situated over the most superficial part of the bone. These abscesses are situated within the newly formed bony shell: a probe can be seldom therefore introduced into them, so as to discover any loose pieces of bone; but sometimes small pieces make their way out through the abscesses. Sometimes the abscesses heal up, and the old bone, being absorbed, is never seen, but only a permanent thickening of the part remains. This is the most favourable way for the case to terminate; but at other times, the old bone makes its way through openings in the new bone, and through the skin, with different degrees of inflammation, pain, and supuration. The old part, called the *sequestrum*, may be moved by shaking it; and in some favourable situations may be easily pulled away; in others, it may be necessary to make an opening to discharge it. The period of life most subject to this disease, is from twelve to eighteen years of age. The bones most liable to necrosis are those of the extremities; the clavicle, the

scapula, and the lower jaw. In general, there is no external apparent cause for the disease; but sometimes blows, acrid substances applied to the teeth, and the effects of mercury, give occasion to necrosis of the lower jaw.

SOFTENING. *Mollities ossium.* A general softening of the bones sometimes takes place, as the consequence of an unhealthy state of the system brought on by a poor diet, cold damp lodging, and sedentary employment, as at manufactories and similar works. One of the most distressing consequences of this softening of the bones, is the distortion of the female pelvis, which sometimes takes place, rendering delivery impracticable, or of the spine, causing great deformity. When softening of the bones is discovered in time, the persons must use a nourishing diet, with bark and chalybeates; they must continue in as easy a posture as possible, till the bones get a little hardness and consistency, and then gradually take such active exercise as they can bear.

NODE. A node is a hard circumscribed tumour on a bone, occasioned by a swelling of the periosteum; appearing commonly on those bones which are thinly covered with soft parts, as the forehead, the fore-arm, and the shin-bone. They are generally symptomatic of old syphilitic complaints, and when they continue long, they are apt to occasion a caries of the bone. They are to be treated by mercury; and it is generally necessary to give at the same time the decoction or compound syrup of sarsaparilla, and to keep up the strength by nourishing diet, bark, and a moderate and cautious use of wine.

BRAIN, INJURIES OF THE

Injuries of the brain from blows, falls, or other external violence, may be divided into the two states of *concussion* of the brain (commonly called stunning), and *compression*.

CONCUSSION. The symptoms of severe concussion are, total insensibility, the patient scarcely feeling any in-

jury that may be inflicted upon him,—loss of voluntary motion,—difficult breathing, but in general without any stertorous noise,—intermitting pulse,—cold extremities,—contracted pupil; after a longer or shorter time, there is sickness with vomiting,—the pulse and breathing become better, and though not regularly performed, are sufficient to maintain life, and to diffuse an increased warmth over the extreme parts of the body,—the feeling of the patient is now so far restored, that he is sensible if his skin be pinched, but lies stupid and inattentive to slight external impressions. When the stupor ceases, in many cases symptoms of inflammation of the brain sooner or later manifest themselves.

COMPRESSION. If the injury to the head be such that a portion of the bone is driven inwards, or blood is poured out on the surface of the brain, symptoms often occur denoting compression; they are insensibility and loss of voluntary motion,—laborious breathing, with a stertorous noise,—slow, labouring pulse, but not generally intermitting,—cold extremities,—the pupils of the eyes much dilated, but no sickness, at least till the compression is removed by a surgical operation, or other means. So long as the compression continues, there is no return of feeling, so that the patient is insensible to pinching, or other injuries inflicted.

The best treatment at the commencement of a violent stunning, or *concussion*, is to place the patient in a warm bed, to apply bladders of hot water over the region of the heart and stomach, and to employ gentle friction to the limbs. When he begins to recover, a little warm tea may be given him, but no brandy, wine, nor other stimulants; for all severe injuries of the head are liable to be followed by inflammation, and we should be attentive to this probable consequence for many days after the receipt of such an injury. It was formerly a common practice, in cases of concussion, to apply strong stimulants to the nose, and to administer them internally; but these are now

abandoned by all good surgeons, for the reasons just given. The patient must be kept quiet, and have his bowels opened by an injection. If, as he recovers sense and the power of motion, he grows irritable, and has pain in the head, and flushing of the face, we should anticipate inflammation by taking a pint of blood from the arm, by giving some active purgative, and by applying cold water to the scalp. Should active inflammation of the brain supervene, the means noticed under that head must be rigorously enforced.

In *compression*, it will frequently be necessary to employ an instrument called a trephine, in order to remove the depressed portion of bone, or to give discharge to blood which may have been poured out, and be pressing down the brain; this operation falls, of course, to the province of the surgeon. It sometimes happens, however, that a man will fracture his skull without any decided symptoms of compression taking place, at least immediately: men have walked to a public hospital, after such accident, and have experienced no very serious inconvenience. In this case, it appears to us the soundest practice not to trephine, unless symptoms of compression of the brain should subsequently appear; for patients who have been trephined under these circumstances, without evident signs of compression existing, have generally died, while those upon whom no operation has been performed, have as frequently recovered.

In *all wounds and lacerations of the scalp*, it is now the universal practice of well-informed surgeons to free the torn piece from dirt, or foreign bodies, and restore it as quickly, and as perfectly as possible, to its natural situation. No cutting away of any part of the scalp is, at this time, ever advised; and it is very rarely that sewing is necessary, the application of slips of adhesive plaster being almost invariably sufficient to insure the union.

BRONCHOCELE.

The goitre, or swelled neck, which

so frequently occurs among the inhabitants of mountainous regions, is called *brouchocele*. It is a common disorder in Derbyshire, England, and among the inhabitants of the Alps, and other hilly countries in their neighbourhood; also in the valleys of Savoy, and at Milan, and among the Pyrenees, and Cevennes, in France. The swelling in *brouchocele* is at first without pain, and unattended with any evident fluctuation, the skin retaining its natural appearance. As the swelling advances, it grows hard and irregular; the skin becomes yellowish, and the veins of the neck put on a distended and winding appearance; then the patient complains of frequent flushings of the face, with head-ache, and pains darting through the tumour. When the disease has continued long, and the swelling is great, the cure is difficult; and from the largeness of the arteries which supply it, we can hardly venture on its extirpation by the knife; but in the early stages of the disease, something should be attempted by internal medicines, assisted by frictions with camphorated mercurial ointment over the tumour. We may also apply blisters, cooling lotions, and soap plasters; but we are also to use internal remedies; and of these, the most successful was at one time considered to be the burnt sponge. It was long a question, on what ingredient of its composition its virtues depended; but it seems now to be ascertained, that it is owing to the iodine which enters into it; and this iodine may be employed separately, under the form of solution in alcohol, by which its dose can be accurately determined and ascertained, and a more decided effect upon the disease produced. Thirty-six grains of iodine may be dissolved in an ounce of alcohol, and of this, ten drops may be given three times a day, in any viscid liquid; this dose may be gradually increased to twenty drops. This substance may also be used in the form of hydriodate of potassa; forty-eight grains are dissolved in an ounce of water, and from ten to thirty

drops are given of this solution. Iodine has also been employed externally in the form of ointment, when the stomach has rejected it, or in conjunction with its internal use. Half a drachm of hydriodate of potassa, mixed intimately with an ounce and a half of hog's lard, may be used as an ointment; rubbing in upon the tumour, night and morning, a piece the size of a garden bean. In decided goitre, the effects of iodine are very remarkable; it softens the tumour, and gradually promotes its absorption; but it is proper to alleviate any local inflammatory action, by leeches and cold applications, and to strengthen the constitution by tonics. If any feverish symptoms occur, the iodine should be discontinued; and also where it occasions cough, restlessness, laxity of the bowels, and emaciation.

It is an interesting subject of inquiry, what circumstances render the inhabitants of certain districts especially liable to this disease. As it has been observed, that districts abounding with saline and mineral springs exhibit more instances of this disease than other places, the impregnated waters of these parts have been supposed capable of producing the disease in question. The use of snow-water has been thought to give rise to swelled necks; but this is rendered improbable, by the frequent occurrence of the disease in Sumatra, where snow and ice are never seen; and it is remarkable, also, that the disease rarely occurs in Thibet, though the rivers there are chiefly supplied by the melting of the snow, with which the mountains are always covered. *Brouchocele* is believed, like *scrofula*, to be a disease transmitted from the parents to their offspring; and its occurrence among the inhabitants of certain districts, is ascribed to their being in some measure excluded from the rest of mankind, and intermarrying with each other. The swelled neck is in very many cases connected with cretinism or fatuity; although in frequent instances the *brouchocele* is totally unaccompanied by any degree of idiotism.

BUBO.

A bubo is a swelling in the glands of the groin; the swelling of glands in the arm-pit is also sometimes called by the same name. The swelling of these glands arises from different causes, from irritating matter absorbed, in some part of their course, by the lymphatics which pass through the glands, from certain diseases, and from local irritation. A remarkable instance of general disease occasioning bubo is seen in the plague; a conspicuous symptom of which is the inflammatory swelling of the groin, and occasionally of the axillary glands, or of the parotids. Buboes sometimes appear on the first day of the complaint, sometimes a few days later; and it is thought that the cases are worse when no buboes appear. These buboes vary in the rapidity with which they advance to suppuration; when this takes place, the swelling should be opened with the lancet, and the matter discharged.

Buboes from the absorption of morbid matter. The most common instance of this, is the swelling of the glands in the groin, from the absorption of the venereal virus. Such buboes inflame and suppurate, sometimes very rapidly; but in some constitutions, as the scrofulous, the process is slower, and it is also retarded by mercury, employed for the cure of the venereal disease. The pain of these swellings is acute, and the skin is of a bright red colour.

When the surgeon sees a bubo not very near to suppuration, he is to attempt the resolution of it, if possible. This is to be done by diminishing inflammatory action, by purgatives, leeches, and tepid applications to the swelling, and by a general bleeding, if there is much fever. When we design to cure the original disease by mercury, we are to rub it upon the thigh; and also, if possible, on the parts between the sore and the inflamed gland; and, generally, when the disease is taken in time, the buboes will disperse, and the sores heal; the mercury being contin-

ued prudently for some time after the buboes have disappeared. When they have suppurated, they are to be opened by the lancet, and poulticed for a day or two; and the mercury must be continued until the sore assumes a healthy appearance; but we need not always continue it till the bubo is quite healed. Sometimes buboes degenerate into very foul and extensively corroding ulcers. Much doubt is entertained whether this is owing to the venereal poison, or to the combined influence of the poison and mercury. Different methods are to be tried in this instance. The use of mercury must be suspended; poultices of hemlock are to be applied to relieve the pain and irritation; and sarsaparilla in powder, or decoction, is to be given internally. Bark, and the preparations of iron, with a nourishing diet, are to be given, when there is much debility.

BURNS AND SCALDS.

From the frequency of their occurrence, and the destructive effects they produce, burns and scalds form an interesting subject to every medical practitioner; and from their very frequent occurrence in domestic life, and in the ordinary occupations of society, it is highly expedient, that every person not professional should know what is to be done at the moment of such an accident, in order that neither any thing improper should be applied, nor precious time lost in waiting for the coming of the surgeon. To speak accurately, we should apply the word *burn* to injuries from heated solids, and *scalds* to injuries inflicted by heated liquids. The first effects of burns or scalds are, very acute pain, inflammation of the skin and adjacent parts, a raising of the outer skin, forming one or more blisters, extensive redness of the surrounding skin, followed by suppuration and great discharge of matter, the parts healing with great difficulty. The appearances presented by burns differ according to their violence and extent. Some may only irritate the skin, while others destroy the skin and parts more

deeply seated, as the muscles, tendons, &c. The injury from scalds is generally more extensive, though not so deep as that from burns; and the danger appears to be in proportion to the extent, more than to the violence of the injury; or rather, it is to be estimated by considering the extent and violence together. The worst burns that occur, arise from the burning of inflammable gases, from the explosion of gunpowder, from the boiling over of hot fluids, as painters' oil, or fluids in laboratories; from the dresses of females or children taking fire, from children pulling over on themselves tea, broth, or boiling water, and such like accidents. Burns which only irritate the skin without destroying it, are very similar in their effects to the substances used in medicine for blisters and rubefacients. The vessels of the injured part pour out a fluid under the cuticle, which is raised into one or more blisters. But when the skin has been destroyed, no vesicles appear, but a black dead slough. This is detached after some time; and a sore is formed more or less deep, according to the degree of the injury. When a large surface is burnt, mortification sometimes makes its appearance with great violence, very quickly after the accident; but in general, the occurrence we have to fear, is great inflammation, and consequent suppuration. In many cases, the inflammation is not merely local, but gives rise to general fever, requiring strong constitutional remedies. Soon after an extensive burn, the patient is affected with great nervous irritation, and trembles violently; there is a sense of chilliness, coldness of the surface, paleness of the skin, and sometimes vomiting. The extensive sympathy between the lungs and the skin as excreting organs, renders an asthmatic affection not an unusual attendant on burns; and from extensive burns the stomach also is much affected.

There is no part of surgery on which there has been greater difference of opinion, than the treatment of burns; and even the remedies popularly trusted

to are very various. It must be admitted, however, that while medical writers have suggested applications, absolutely pernicious, in spite of all the plausible theories with which they have recommended them, the remedies known among the people are all more or less salutary; and common sense has preserved them from the improper practice of applying stimulants or turpentine, indiscriminately, to an injury requiring to be treated by far gentler means. It is not our intention to enter into any discussion of the comparative merits of the different applications that have been recommended, but simply to state what in general the most judicious practitioners have found to be successful. We shall first suppose that a person has received a pretty extensive scald, and that assistance is promptly at hand. Supposing the skin unbroken, whether blisters are rising or not, we would strenuously recommend the instant application of cold to the injured part. A ready mode of doing this, is by adding one part of vinegar to one part of water, taking a towel or many folds of soft linen, dipped in this mixture, and keeping it constantly wet upon the part; continuing this cooling treatment for a longer or shorter period, according to the continuance or abatement of the pain. We have mentioned vinegar and water, as a good means of applying cold, because, besides its intrinsic excellence, it is generally at hand; but supposing it not to be readily got, we may attempt the same effect by cloths soaked in cold water alone, or spirits and water; always on the supposition that the injury does not destroy the skin, or at most only the outer skin. If there is a deep injury, any acrid substance added to the water, as vinegar or spirits, would be too painful to be borne, and would only add to the irritation; it is therefore better to use oily applications, and of these the most famous is made by mixing equal parts of linseed oil and lime-water; this is to be plentifully smeared on the place burnt, with a feather or hair pencil, and a single fold of linen placed over it to prevent the ac-

cess of air. Immediately after the first application of the cooling wash, or oily matter, if the chilliness and shivering be great, a full dose of laudanum should be given, proportioned to the age of the patient. During the cure, the diet should be moderate; and no strong drink allowed. In many cases, the application of cold will accomplish the resolution or cure of the burn without further trouble; the skin will not rise in blisters, and at the worst the outer skin will dry and peel off. Or supposing blisters have arisen; when the pain has ceased, they may be pricked with a needle, and the fluid allowed to escape, keeping the skin on as long as possible. It may happen that the pain abates, and the skin comes off, leaving the part below in a state of ulceration or suppuration; in this case, emollient poultices are to be applied till the suppuration appears inclined to cease, and then the sores are to be dressed with cerate, lard, Goulard's extract, or the like. In the dressing of burns, care must be taken to keep the raw surfaces from contact, to prevent them from growing together. Thus, the fingers must be dressed separately; joints should be extended so as to prevent them from being permanently bent; and the chin must be kept from growing to the breast. It is a disagreeable and frequent characteristic of burns, that they are apt to be accompanied with great rising of fungous flesh, and to leave unsightly scars, much above the level of the skin. The rising flesh must be eaten down by blue vitriol, by lunar caustic, or other escharotics; and the new skin kept to its level by proper bandaging and adhesive plaster. When the clothes are set on fire, or when, as too often happens, persons intoxicated, or incapable of taking care of themselves, fall into the fire, deplorable consequences ensue. Large eschars are formed and drop off, extensive ulceration and exhausting suppuration take place, and death at a longer or shorter period follows. We must dress the sores with all the care and skill possible; and support the strength with bark and nutritious diet, to give the

constitution, if possible, the power of supporting the copious discharge.

A remedy which has in some cases appeared to do good, and has of late been much celebrated, is to apply cotton to extensive burns. The good effects of this are owing to its protecting the tender nervous extremities of the injured part, from the contact of the external air.

CANCER.

The subject of this article is one of the highest importance, whether we consider the dreadful sufferings attending the disease, the interesting character of the sex who are the most frequent victims of it, the variety of the remedies which have been proposed and abandoned, or the general want of success which has attended all plans of treatment that have been adopted with the view of arresting its fatal course. Cancer is a disorder which, above all others, has called forth the quackery of numerous impostors, who by their extravagant praise of various remedies, have deceived the hopes of the credulous and the miserable. With unblushing impudence, empirics have published their success under what appeared the most hopeless circumstances; and race after race of hapless sufferers have found reason to deplore their bitter disappointment.

Cancer is of two kinds, the occult or scirrhus, and the open or ulcerated; but these may be more properly regarded as different stages of the same disease. By occult or scirrhus cancer, is meant a hard tumour, for the most part accompanied by sharp darting pains, which recur more or less frequently. This tumour, in the course of time, breaks and ulcerates; and then is more strictly denominated cancer. The parts of the body subject to cancer are the following: the female breast and the uterus, the lips, especially the lower one, the tongue, the skin, the tonsils, the lower opening of the stomach, and some other parts chiefly glandular. Chimney-sweepers are subject to a cancerous affection of the scrotum.

Of all the organs, it attacks most frequently the female breast; and, as in this part the disease has been the most accurately investigated, the remainder of this article shall be chiefly devoted to the description of cancer, as it appears in that organ. In general, cancer begins at a small spot, and extends from thence in all directions. Its progress is more or less quick in different instances; and very able writers think, that when cancer has once begun, it may be checked, though it cannot be removed by those means which are usually employed to discuss other swellings; as leeches, cooling or soothing applications to the part, and a state of rest in conjunction with a proper regulation of diet. Others again believe, that in some cases they have succeeded by these and other means in completely dispersing tumours which had all the appearance of being cancerous. In general, it is too true, that scirrhus is seldom or never dispersed; and that it causes, finally, the neighbouring parts, whatever their nature may be, to put on the same diseased action; and thus the skin, the muscle, the cellular substance, are all involved in the same destructive process. In consequence of this morbid action, the skin above a cancerous tumour becomes attached to it, and the tumour is also attached to the muscles below. The tendency to this unhealthy action begins in the neighbouring parts, even before it can be distinctly seen; of which the melancholy proof is, that if the tumour be cut out, the disease will re-appear in those neighbouring parts; and hence a necessary rule in operating for cancer, is to take away a considerable portion of the surrounding substance. As the swelling increases, it becomes knotty and unequal on its surface, and this inequality has been considered as characteristic of the disease; almost in every case, a darting pain is experienced. The hard swelling which is likely to terminate in cancer, is attended generally by the following assemblage of symptoms: the skin is puckered and of a dull livid colour, the part is knotted and uneven,

occasional darting pains shoot through it; it is attached to the skin above, or to the muscles beneath; and in some cases, there is a peculiar unhealthy look about the patient. When the swelling is moved, the whole breast moves along with it. The structure of the swelling is different in the various stages of the disease. In the first stage, the following appearances present themselves: the centre is more compact, harder, and of a more uniform texture than the rest of the tumour, and appears almost like gristle. From this centre, narrow white ligamentous bands stretch out like rays in every direction. In the spaces between those bands, the substance is different, and becomes less compact towards the outer edge. When the disease is further advanced, the whole of the diseased part has a more uniform structure; there is no conspicuous central point; the external edge is more defined, and distinct from the surrounding gland, and the ligamentous bands in different directions are very apparent. When the tumour has advanced to that state corresponding to suppuration in other sores, its appearance is then totally different from that formerly described. In the centre is a small irregular cavity, filled with a bloody fluid, and the edges of this cavity are ulcerated, jagged, and spongy; beyond these, there is a radiated appearance of ligamentous bands, diverging towards the circumference; but the tumour near the circumference is more compact, and is made up of distinct portions, each of which has a centre, surrounded by ligamentous bands.

It is not easy to say, what peculiarity of constitution is most subject to cancer; nor why, in some women, a slight blow on the breast should give rise to the fatal hardness which is to degenerate into cancer, while in others, an injury much greater shall produce no bad effects. In many cases, no preceding local injury can be traced as the cause of cancer; but the patient is affected with an irregularity or disappearance of the monthly discharge; and cancer

frequently appears at that time of life when the monthly discharge ceases. Cancer, however, is not confined to any period of life; and even children have suffered from it. It has also occurred in the breasts of men.

There is a disease resembling cancer, which attacks different parts of a glandular structure; as, for instance, the lips and the sides of the nose. It is an eating sore which is uniformly progressive; but it differs from cancer in not contaminating the neighbouring parts, nor affecting the absorbent glands and skin at a distance from it. Unlike cancer, it in various instances admits of a cure, by several modes of treatment.

The diseased skin covering a cancerous tumour, generally ulcerates before the tumour is very large; a considerable opening ensues, and a discharge of a sharp ichorous matter takes place, with great rapidity. Sometimes it appears as if this diseased action were disposed to stop, and there is a growth of flesh, which in some cases is even skinned over; but though there may be occasionally a little mitigation, and the disease may for a time appear stationary, yet it never altogether ceases; nor do the parts show any tendency to put on a healthy action. In the mean time, the absorbent vessels take up the poisonous matter, and convey it to their glands. These become affected in the same manner as the original sore; and if the patient were not speedily destroyed, we should see in various parts of the body, numerous centres of malignant disease. The pain and irritation are now extreme, the sufferings wearing out and distressing; chains of glands become hard, painful, and lancinating; and by their swelling, obstruct the passage of the fluids through them, and cause the limb to become dropsical. A leaden lividness appears in the countenance, the sleep is impaired, emaciation follows, and the long-continued suffering impresses on the face the living picture of anguish and despair. Towards the end of the disease, there is often a cough and difficulty of breath-

ing. The edges of a cancerous ulcer are hard, ragged, and unequal; very painful, turned in various directions sometimes upwards, and at other times towards the sore itself. The surface of the sore is uneven, sometimes there are risings, sometimes deep hollows. The discharge is commonly thin, dark-coloured, and ill-smelled, and so acrimonious as even to corrode the neighbouring parts. Sometimes, from the sheath of the blood-vessels and their coats being corroded, a great deal of blood is lost. The darting pains which were present at the beginning of the disease, are now still more distressing; and one of the most painful symptoms is the burning heat felt all over the ulcerated part.

A disease accompanied with such lamentable circumstances, occurring so frequently in the female sex, and so generally baffling all attempts for its cure, has necessarily called forth many anxious inquiries into its nature, and the best method of treating it. Of the morbid action which takes place in cancerous swellings and ulcers, there seems to be nothing satisfactory known. It is a question of considerable interest, whether cancer is an affection of the constitution, or if it is merely local; as on the decision of this question, will depend the propriety of performing an operation or not. If by cutting out one tumour, we merely remove one diseased portion, and if the malady is probably only to show itself with greater fierceness in another part, then we should certainly spare our patients the terror of the knife; but if the constitution be upon the whole sound, we ought surely to remove any tumour, which we have reason to think would, in a little time, put on the horrid symptoms of so destructive a disease. It would be a long and heartless task, to enumerate all the schemes, proposals, and remedies that have been suggested for the cure of cancer. The endless list is itself a proof, that nothing has yet been discovered that is entitled to our confidence. Supposing a woman with a hard swelling of the breast, to apply to

a surgeon for advice, his opinion will depend on the preceding cause of the swelling, whether it occurred in consequence of a blow, whether from the suppression of milk, or from cold; whether it has continued long; whether it is knotty and unequal; whether the skin is puckered; whether there are acute and darting pains shooting through it. It is a safe practice, to apply to all tumours on the breast, a number of leeches, and to procure a free discharge of blood by means of them; to rub the tumour with warm oil, either simple or camphorated, or with iodine ointment; to keep the bowels open, and to attend to the general health. These means should be persevered in for some time, and we shall find some tumours at first of a very unpromising appearance, disappear at last under this treatment. If we find, after continuing our trial a reasonable time, of which the attending practitioner in every individual case must judge, that no progress towards amendment is made, but that there is every reason to fear, a scirrhus tumour and open cancer will ultimately be the result, there is no resource left, but to submit to the removal of the part, before the latent mischief has spread, and become irrepressible. As to the method of removing the tumour, two have been proposed, either by the knife or by caustic. The operation by caustic, though it may be agreeable to the timidity and prejudices of some, is in reality a far more formidable way of removing the tumour, than the knife. The pain is indeed much greater; and the probability is, that it will excite an inflammatory action, which will quickly bring the tumour into the state of ulceration. It often requires repetition, and the great length of time necessary in some cases, for the separation of the dead parts, renders it very tedious. Mr. Pott describes, with great indignation, another bad effect from the attempt at removing by caustic, viz. the plausible pretences it gives to quacks for saying, that they have removed the cancer by their applications. He says, that "the ragged appearance which the

bottom and sides of the parts make, after having been removed by the application of caustic, is so unlike the smoothness of that which has been removed by incision, that ignorant people are easily induced to believe, what the designing always tell them, that, namely, the medicine has taken their disease out by the roots, and that the ragged parts which they see, are such roots. When nurses and quacks talk of the fibrous roots of a cancer, and of cancerous fermentations, they are excusable, the one from their ignorance, the other from the nature of their trade; but when they who pretend to some kind of medical knowledge use this kind of language, it is shameful." If we have decided to remove a cancerous tumour, the knife is, of all means, the simplest, the safest, and the best; and though we can not always secure the patient against a return of the complaint, yet if the operation be timely performed, there is reason to hope, that except in very bad constitutions indeed, the patient may get rid, in the majority of cases, of this very deplorable malady. When it does recur, it is too often in consequence of some of the diseased parts having been left behind, or the too long delay of the operation. Some deny altogether the existence of any general disease which may be termed cancerous; yet it certainly does happen, that the disease recurs in cases where we have every reason to believe, that the injured parts have been freely and completely removed. When cancer affects any other part than the breast, its removal must be attempted by the methods proper for operating on that part.

Though little good is to be done by any external application, it may not be useless to mention, briefly, what have been proposed, and to state what things ought *not* to be done. Cicuta, or *hemlock*, has been a good deal employed, on the recommendation of Dr. Stoerk, of Vienna. He had great confidence in it, but other practitioners have not found it to give even a temporary relief. It may do some little good as a

narcotic, in allaying pain, and procuring a slight suspension of the irritation; but as to any power it has of an ultimate cure, it is utterly worthless. The way of using it has been, to begin with a small dose, and gradually to increase it, till giddiness is produced. Two grains of the extract, now called the inspissated juice, or three grains of the powder taken twice a day, is the dose to begin with; and at last, some patients have been able to take an ounce of the extract daily, but with no ultimate good effect. *Belladonna*, or the deadly nightshade, has also been used, but with equally bad success. The dose at first is a grain of the dried leaves, night and morning. *Hyoscyamus*, or henbane, beginning with two grains of the extract, is another remedy, but equally inefficacious. *Digitalis*, or foxglove, by diminishing vascular action, has some slight effect, merely as bleeding or spare diet would have; but it has no peculiar power at all in the removal of the cancer. *Opium*, in this irritating complaint, is frequently used to allay pain; though no more capable than any thing else, of effecting a cure. All the articles just mentioned are of a narcotic quality, and it is probably from their giving some slight alleviation, that remedies of this class have obtained any notice in so untractable a disease. *Mercury*, so efficacious in a great variety of diseases, has also been tried in cancer; but so far from doing good, it is sure to aggravate the symptoms, especially in the ulcerated state. *Arsenic* was at one time thought to have great and specific powers in cancer; and many practitioners yet have hopes, that if a remedy is to be found, it is to be in some preparation of this mineral. The mode of administering this dangerous substance will be found under **ARSENIC**; as well as the precautions necessary even in its application in the form of plasters, &c. *Iron*, in various forms, has been used and much extolled by Mr. Carmichael of Dublin, for the cure of cancer. He has made much use of the carbonate of iron, or what is well

known by the name of rust, in the quantity of thirty grains in the course of a day, in divided doses. He has also used the tartrate and phosphate of iron. In many constitutions, the preparations of iron are apt to bring on costiveness, with head-ache and affection of the breathing: these symptoms are to be obviated by the exhibition of aloes or other purgatives, by withdrawing the iron, and by giving camphor or other antispasmodics. Preparations of iron, however, have shared the fate of other anti-cancerous medicines, and have not supported their claims to confidence. Some good has apparently been done, by keeping cancerous patients on a very spare diet, or on one consisting principally of milk. Cancerous ulcers have been dressed with a great variety of applications, principally of the narcotic kind; and some of these have the effect of abating the pain, and correcting the bad smell: but the carrot poultice has been found as efficacious as any other. A weak solution of the chlorate of soda has been found a useful wash.

It is now time to bring this long and unsatisfactory article to a close, by repeating that for true cancer, no remedy whatever has yet been found, but early and complete extirpation of the diseased parts; and that in every case, the earlier this is done, after the disease has been determined to be true scirrhus, the better. It is improper to waste time by the fruitless exhibition of a variety of remedies, which former experience has shown to be quite unworthy of confidence. In the early stages, bleeding by leeches, and even in some constitutions, a general bleeding or two, and a low diet, may be tried; and a prudent attempt may for a short time be made by arsenic, hemlock, and iron; but these should not be long persisted in, as the disease may, in the mean time, be insidiously extending itself, and rendering even the extirpation unlikely to effect a cure. When the operation is resolved upon, let it be done effectually, and with the knife; let no timidity prefer the apparently milder, but really

more cruel means by caustic; which, without removing the disease, will only aggravate it, and rouse into action that mischief which would perhaps have long remained latent.

Finally and especially, let the unhappy patients and their friends be on their guard against the false pretences of interested quacks, who, without the slightest portion of medical skill, promise a safe and speedy cure of cancer: who, though scarcely able to read or write, boast of having succeeded where learning, extensive experience, and skill have failed; and who, pretending to be in possession of a secret by which the acutest sufferings of humanity can be alleviated, mysteriously conceal their nostrums from the candid practitioner, and deal only with hopeless misery, credulity, and ignorance.

CARBUNCLE.

What is called carbuncle is a very common symptom in the plague; but comes on also sometimes as a primary disease. The first symptoms are great heat and violent pain in some part of the body, on which arises a kind of pimple, attended with great itching; below which a circumscribed, but very deep-seated, and extremely hard tumour may be felt with the fingers. This tumour soon assumes a dark red, or purple colour about the centre, but is considerably paler about the edges. A little blister frequently appears on the apex, which, as it occasions an intolerable itching, is often scratched by the patient. The blister being thus broken, a brown sanies is discharged, and an eschar makes its appearance. Many such pimples are sometimes produced upon one tumour, in consequence of the patient's scratching the part.

The progress of carbuncles to the gangrenous state is generally quick. Their size is very various; they have been known to be as large as a plate. Considerable local pain and induration always attend the disease. The skin, indeed, has a peculiar feel, like that of brawn. As the complaint advances, several apertures generally form in the

tumour. Through these openings, there is discharged a greenish, bloody, fetid, irritating matter. The internal sloughing is often very extensive, even when no sign of mortification can be outwardly discovered.

The carbuncle is most frequent in old persons, whose constitutions have been injured by voluptuous or intemperate living; and hence, we cannot be surprised that the local disease, influenced by the general disorder of the system, should assume a dangerous aspect.

The degree of peril may generally be estimated by the magnitude and situation of the tumour, the number of such swellings at the same time, the age of the patient, and the state of his constitution.

The duty of a surgeon, in cases of carbuncle, may be described in a very few words. With regard to the local treatment of a carbuncle, the grand thing is to make an early and free incision into the tumour, so as to allow the sloughs and matter to escape readily. As much of the contents as possible is to be at once pressed out, and then the part is to be covered with an emollient poultice. Fomentations will also be found to afford considerable relief, both before and after an opening has been made. As the discharge is exceedingly fetid and irritating, it will be necessary to put on a fresh poultice two or three times a day. The use of the poultice is to be continued, till all the sloughs have separated, and the surface of the cavity appears red, and in a granulating state; when soft lint and a pledget of some unirritating ointment should be applied, together with a tow compress and a bandage. The dreadful manner in which the disease is protracted by not making a proper opening in due time, can not be too strongly impressed upon the mind of every practitioner, and it may justly be regarded as a frequent reason of the fatal termination of numerous cases.

With respect to the constitutional treatment, we should remember, that the disease is for the most part met

with in bad constitutions, and in persons who are weak and irritable. Hence, it is only where there is a full strong pulse, and the complaint is just beginning, that bleeding is allowable. Bark and camphor are the internal medicines most commonly needed. The vitriolic acid is also very proper, as well as a judicious use of wine and aromatics. As the pain is very severe, opium is generally an essential remedy. The constitutional treatment is, in truth, very analagous to that of mortifications.

From repeated experience the application of a blister over the affected part is confidently recommended as the best local remedy for carbuncle.

CHANCERE.

The chancre is a local disease generally arising from impure connexion, presenting the following appearances: it begins with an itching in the part; this is gradually converted into pain; in some cases, the surface is excoriated, and afterwards ulcerated; or a small abscess appears, and, breaking, turns into an ulcer. The parts at which a chancre is seated are affected with a thickening, which terminates abruptly, and does not gradually lose itself, like some other swellings, in the surrounding parts. Its base is hard, and the edges a little prominent. In parts where the skin is somewhat thick, the chancre commonly makes its appearance in the shape of a pimple, which forms a scab in consequence of evaporation. The first scab is generally rubbed off, after which a second, still larger, is produced. From chancres, the poisonous matter finds its way into the system through the absorbents, and infects it with many distressing symptoms. Chancres at first are mere local complaints; and in their treatment, our object is to heal the local injury, and if possible, to prevent the morbid matter from getting into the constitution. The local treatment consists in applying caustic to the sore, dressing it with mercurial or red precipitate ointment, and keeping it free from any accumulation of matter. In this manner the

sore will probably be healed, and the constitution secured from any further danger.

CHILBLAINS.

The chilblain is a painful swelling, of a florid, deep purple, or leaden colour, appearing on the fingers, toes, heels, and other extreme parts of the body, in consequence of exposure to cold and damp. The pain is sometimes intermitten and pungent, but the patient is more frequently annoyed by an obstinate itching, and sense of tingling. The part often swells, and ulceration not unfrequently follows; in which case, a simple separation of the skin is first observed, and below this there appears a foul, irregular, and painful ulcer.

It is most frequently found in children, and older persons of relaxed fibres; and the common exciting cause is exposure to severe degrees of cold, or incautiously approaching the fire when the hands and feet are chilled.

When the chilblain is not ulcerated, the topical application of a stimulating liniment or lotion, is generally sufficient for a cure, if it be used early, and with perseverance, the part being defended, at the same time, from the contact of the external air. Equal parts of olive oil and turpentine, volatile or soap liniment, or alcohol, are the most efficacious. Sir Astley Cooper is said to be partial to the following liniment. Take of camphorated spirit of wine, one ounce; Goulard's extract, (pure,) half an ounce; mix, and apply to the part.

In the ulcerated state, warm and irritating dressings, as the common basilicon ointment, with or without the addition of turpentine, will alone succeed in affecting a cure. If fungous flesh should appear, we may apply the citrine, or white precipitate ointment, till it has been removed; then dress with one of the former ointments till well. The following application is much esteemed in the ulcerated state. Take of honey, common turpentine, of each, four ounces; mix these together, and then stir in a sufficient quantity of

the finest wheat flour to give it the consistency of a cerate. Dress the part with it twice daily, in the usual way.

Many persons subject to chilblains might prevent their occurrence, or very much lessen their severity, if upon the approach of winter, they were to defend the parts from external cold, by wearing leather socks, or a warm diachylon or Burgundy pitch plaster, spread upon leather. Daily friction with a flesh-brush should also be resorted to, and the parts fomented with a wash composed of two drachms of sal ammoniac, five ounces of water, and an ounce of spirits of wine; or the soap liniment may be occasionally rubbed in, which will harden the skin, and effectually promote the circulation of the parts.

No person troubled with chilblains ought ever to allow the employment of any means which tend to weaken either the part affected, or the general system. Sometimes the chilblains will swell to a considerable size, and appear very red and inflamed; but these symptoms will never fail to be much increased by poultices, confinement, and every other measure that has not the effect of giving tone and strength to the local and general circulation.

CHORDEE.

Chordee is a painful spasmodic erection of the penis. It occurs most frequently in the second stage of gonorrhœa, and takes place chiefly when the patient is warm in bed. For this affection, opiates are the most useful remedy; forty drops of laudanum are to be given at bed-time, and the parts affected are to be rubbed with laudanum, or a strong solution of opium in water. In some cases, leeches may be applied, or it may even be necessary to employ general blood-letting.

CIRCOCELE.

Circoccele is an enlargement and distension of the spermatic veins, or the vessels which carry blood from the testicles. When it occurs, the scrotum is in general found considerably swollen

on one side, and when grasped with the hand, gives the sensation of a bag containing a number of strong convoluted cords, and which may also be traced upwards towards the abdominal ring. The swelling occasions considerable pain; and in some cases, is attended with wasting of the testicle. The pain, which is of a dull kind, and felt in the back, is relieved by suspending the scrotum. When this disease is mistaken for a rupture, and a truss is applied, bad effects may follow, such as great enlargement of the vessels, and shrinking of the testicle. The method of distinguishing circoccele from rupture is the following: place the patient in a recumbent posture, return the swelling into the abdomen by the abdominal ring; make pressure at the ring, and desire the patient to rise; if it be rupture, the swelling will not appear, being kept in by the pressure at the ring; but if it be a distended state of the vessels, the blood will not get into the abdomen, owing to the pressure, and, therefore, the swelling will rapidly increase. This complaint is seldom cured; and is to be palliated by cold lotions applied to the testicle and spermatic cord, when there is much pain; and by supporting the parts with a bag-truss. When the symptoms are severe, leeches should be frequently applied, the bowels should be kept open, and the patient should remain in the horizontal posture. The disease may, however, be radically cured by a surgical operation.

CLUB-FEET.

Children are sometimes born with the feet distorted, either outwards or inwards. This deformity, which has received the name of club-feet, is both disagreeable to behold, and inconvenient for walking; and parents are naturally very anxious for its removal. The bones being in a soft and grisly state, renders this very often practicable, if the cure be begun very soon after birth. In most large towns there are artists who form various kinds of machinery for this purpose, and very simple means will do to restore the

parts to their natural position, and to keep them there. An experienced surgeon should always oversee the operations of the artist.

CONTUSION, OR BRUISE.

Slight bruises seldom meet with much attention; but when they are severe, very bad consequences may ensue, and such are the more likely to occur, when these cases are not taken proper care of.

In all severe bruises, besides the inflammation which the violence necessarily occasions, there is an instantaneous extravasation of blood beneath the skin, in consequence of the rupture of many of the small vessels of the part. Even large vessels are frequently burst in this manner, and very considerable collections of blood are the consequence. Blows on the head very often cause a large effusion of blood under the scalp.

Besides the rupture of an infinite number of small vessels, and extravasation, which attend all bruises, in a greater or less degree, the tone of the fibres and vessels which have suffered contusion, is considerably disordered. Nay, the violence may have been so great, that the parts are from the first deprived of vitality, and must mortify.

The bad consequences of bruises are not invariably proportioned to the force which has operated; much depends on the nature and situation of the part. When a contusion takes place over a bone, which is thinly covered with soft parts, the latter always suffer very severely, in consequence of being pressed, at the time of the accident, between two hard bodies. Hence, bruises of the shin so frequently cause death of the soft parts, and troublesome sores. Contusions affecting the large joints are always serious cases; the inflammation occasioned is generally obstinate, and abscesses and other diseases which may follow, are consequences sufficient to excite serious alarm.

In the treatment of bruises, the practitioner has three indications, which

ought successively to claim his attention, in the progress of such cases.

The first is to prevent and diminish the inflammation, which, from the violence done, must be expected to arise. To effect this, the bruised parts should be kept perfectly at rest, and covered with linen, constantly wet with cold water, or lead water. When the muscles are bruised, these are to be kept in a relaxed position, and at rest, until the effects of the bruise are entirely removed.

If the bruise has been very violent, it will be proper to apply leeches, and this repeatedly, and even, in some cases, particularly when joints are contused, to take blood from the arm. In every instance, the bowels should be kept well open with saline purgatives, and the patient put upon a low diet.

A second object in the cure of contusions, is to promote the absorption of the extravasated fluid by discutient applications. These may at once be employed in all ordinary contusions, not attended with too much violence; for then nothing is so beneficial as maintaining a continual evaporation from the bruised part, by means of cold applications, and, at the same time, repeatedly applying leeches. In common bruises, however, a solution of sal ammoniac in water, is an excellent discutient application; but most surgeons are in the habit of ordering liniments for all ordinary contusions, and certainly they do so much good in accelerating the absorption of the extravasated blood, that the practice is highly praiseworthy. The soap and camphorated liniments, are as good as any that can be employed.

In many cases, unattended with any threatening appearances of inflammation, but in which there is a good deal of blood and fluid extravasated, bandages act very beneficially, by the remarkable power they have of exciting the action of the lymphatics, by means of the pressure which they produce.

A third object in the treatment of contusions, is to restore the parts to

their proper tone. Rubbing the parts with liniments has a good effect in this way. But, notwithstanding such applications, it is often observed, that bruised parts continue for a long while weak; and swell, when the patient takes exercise, or allows them to hang down. Pumping cold water two or three times a day, on a part thus circumstanced, is the very best measure which can be adopted. A bandage should also be worn, if the situation of the part will permit. These measures, together with perseverance in the use of liniments, and in exercise, gradually increased, will soon bring every thing into its natural state again.

CORNS.

By a corn, is meant a hardened part of the skin, with a root, sometimes extending deeply into the cellular substance. Corns are owing to long-continued or repeated pressure, and occur principally on the toes and soles of the feet. Tight shoes are one of the most frequent causes of corns; and hence, they are often troublesome to females and others, who are particularly attentive to appearance, and who wish to exhibit a neat and small foot, by compressing it in a shoe of too narrow dimensions. Happily the mutability of fashion has occasioned the disuse of high-heeled, and of narrow-pointed shoes; a most pernicious custom, by which very injurious pressure was made on the anterior parts of the foot, and corns very frequently produced. Corns sometimes exist without giving much pain or trouble; but in other cases, they give so much uneasiness, as absolutely to incapacitate for walking. They are made more particularly intolerable, by every thing that quickens the circulation, or which heats the feet, or causes the corn to press on the neighbouring parts. Hence, tight shoes, much walking, warm weather, heating liquors, all tend to render the uneasiness of corns very great, and they are generally worse in summer than in winter; and persons are frequently obliged to sit down to take off their

shoes, and rest the foot in a horizontal posture.

Corns may often be readily cured, by avoiding the above exciting causes, by wearing large soft shoes, adapted in form to the shape of the feet, and by continuing for some time at rest. Hence, ladies frequently get rid of corns during a lying-in. It is useful to take a considerable number of folds of linen, covered with some softening ointment, cut a hole in the middle for the corn to lie in, and to apply them to the foot; and if it be on the sole of the foot, it may be useful to have an additional moveable sole, with a hole cut in it in like manner. If, along with this mechanical and palliative treatment, we use the following method, a corn will be easily and quickly eradicated: it is to be touched with lunar caustic, and wrapped round with adhesive plaster; and, generally, at the end of a fortnight, the dead cuticle will be removed, with the corn adherent to it. If the corn does not come away, the operation is to be repeated. Several other remedies of the same kind are recommended, of which the principal are, soap plasters or mercurial plasters, or blistering ointment. The following plan may also be tried: every night and morning the foot is to be put into warm water for half an hour, and while there, the corn is to be well rubbed with soap. All the soft white outside of the corn is afterwards to be scraped off with a blunt knife, or, what is better, with a piece of pumice-stone; but we must not persist in this scraping, if the person complains of pain in any part of it. This treatment is to be continued without intermission till the corn is totally eradicated, which it will be in about a fortnight. It is generally a difficult and painful operation to cut out a corn. Unless it be completely taken out, it is apt to grow again, and this it does faster than if it had been let alone. In old people, it is highly dangerous to cut a corn, as this too frequently excites an inflammation, and consequent mortification, which carry off the patient. It is much better to be content with the

plasters above described, with bathing, and other palliative means. When a person has once got rid of corns, they are very ready to recur, unless he take particular care to avoid pressure, to wear wide and soft shoes, and not to walk too much, especially in warm weather.

EMPHYSEMA.

Emphysema signifies a swelling from the presence of air, and is generally applied to the diffused swelling which happens from air getting into the cellular substance beneath the skin. Emphysema is known by a soft puffy swelling; the skin is glossy; the tumour yields to pressure, but returns as soon as the pressure is withdrawn, and a crackling noise is heard when any part of the swelling is pressed. Emphysema most commonly arises in consequence of wounds of the pleura investing the lungs, by a sharp-pointed instrument, or by a fractured rib. It is sometimes brought on by the strong exertions of respiration during labour. When the lungs are wounded, there is troublesome cough, and the expectoration is sometimes mixed with blood; and when air escapes into the cavity of the chest, forming the disease now called pneumo thorax, there is great difficulty of breathing, anxiety, a sense of suffocation, lividness of the countenance; and death ensues, unless relief is speedily obtained; but if at the same time there is also a wound communicating with the cavity of the chest and the cellular texture beneath the skin, emphysema is produced.

If an external wound be the cause of emphysema, it must be closed up, and healed in the usual way; and it may be necessary to lessen inflammatory action by blood-letting, which will require to be repeated if there is much pain, or if the breathing is quick and laborious. The air is to be evacuated from the cellular substance, by a number of small incisions or punctures; and this is also to be done in those cases where emphysema occurs, in consequence of a fractured rib or the efforts

of labour, if the breathing be much affected; but, in general, emphysema disappears without much trouble. When air has got into the cavity of the thorax, as well as into the cellular substance, and occasions great difficulty of breathing, an opening is to be made into the cavity of the chest to give it vent. The best place for performing the operation, if the disease is on the right side, will be on the fore part of the chest, between the fifth and sixth ribs, for there the integuments are thin; and in the case of air, no depending drain is required. But if the disease is on the left side, it will be more advisable to make the opening between the seventh and eighth, or eighth and ninth ribs, that we may be sure of avoiding the pericardium. As large penetrating wounds are inconvenient on account of the air entering by the aperture in such a quantity as to prevent the expansion of the lungs, a small wound will be proper, especially as air does not require a large one for its escape. It is better to dissect cautiously with a knife, than to employ the coarse and hazardous method of thrusting in a trocar.

EMPYEMA.

Empyema signifies a collection of purulent matter within the cavity of the chest. This suppuration is generally the consequence of pleurisy, and is suspected to be present, when there is an abatement of the previous pain, with continuing difficulty of breathing, cough, and hectic fever; while the patient, in general, cannot lie easily except on the side on which the collection of matter exists. Sometimes the chest on that side is expanded, the ribs are a little elevated, and a fluctuation of a fluid can be perceived. When we are satisfied of the existence of matter in the cavity in the chest, it is almost always proper to discharge it by an opening. The safest and most convenient situation for making an opening into the chest, is between the sixth and seventh true ribs, on either side, as circumstances may render necessary.

If there be a collection of matter on both sides, the two operations should not be done at the same time. The operation consists in making an incision about two inches long, through the integuments which cover the space between the sixth and seventh ribs. The patient is to be so placed that the opening may be in a dependent position. The surgeon is to avoid the lower edge of the upper rib, as the intercostal artery lies in a groove running along that part. He is then cautiously to divide the layers of the intercostal muscles, till he brings the investing membrane of the lungs into view, which membrane is to be very carefully divided with a lancet. The instrument should never be introduced deeply, lest the lungs should be injured; and the size of the opening should never be larger than is absolutely necessary. If requisite, a little tube may be introduced into the wound for facilitating the evacuation of the fluid. This tube should not be too long, and should have a broad rim to prevent it from slipping into the chest; it may be kept in its place with sticking plaster, and may be stopped with a cork, if it should be thought convenient to let the matter run off at intervals.

EYE, DISEASES OF THE

CATARACT is a species of blindness, arising from an opacity of the crystalline lens, or of its capsule, the effect of which is to prevent the rays of light from passing through the different coats and humours of the eye, to form an image on the retina, which circumstance is necessary for perfect vision. The cataract appears as a spot or speck on the pupil of the eye, sometimes occupying the whole, sometimes only a part of it. It is commonly of a gray or whitish colour, sometimes of a very pure white. The disease at first shows itself by a weakness or imperfection of the sight, and it almost always terminates in the total loss of that sense. While the disorder is in progress, the patient sees better in a moderate light than in a strong one, as the greater

expansion of the pupil allows a few rays of light to enter. A mist seems to cover objects, and to confuse small ones. This affection often comes on without any assignable cause, and some imperfection of vision is perceptible by the patient himself, before any thing wrong is visible to another person. Without repeating the general description of the eye in this place, we shall satisfy ourselves with stating, that the lens is a round crystalline body, clear and viscid, and contained in a little case or capsule, and situated immediately opposite the pupil or sight of the eye; cataract is produced by a thickening or dimness, either of the containing membrane or of the lens itself. When the contents are hard and solid, it is called a hard cataract; when fluid or milky, a fluid cataract; and when the contents are like a jelly, or curd, it is called caseous, or cheese-like.

Cataract is believed to occur most frequently to persons who are much exposed to strong fires, as glass-workers and blacksmiths. It rarely appears before the age of forty; but children are sometimes affected by it, and some are even born with it. In general, cataract arises spontaneously, and no cause can be assigned for it. Sometimes it arises from external violence, from blows on the eye or neighbouring parts, and these cases are, in general, more likely to get well than those which begin without any evident cause.

No cure is to be expected until the obstruction to the passage of the rays of light is removed. This is the purpose to be effected, and the means are either constitutional remedies, and external applications, or the removal of the opaque body from the sphere of vision by an operation.

Various remedies have been recommended, of which the principal are bleeding, cupping, and scarifying, as also issues, setons, and blisters. The juices of some plants have also been in vogue, but little confidence is to be reposed in their efficacy. Cataracts from external violence have sometimes dispersed spontaneously; and, in other

cases, a blow on the eye has been followed by the sudden disappearance of cataracts. Mr. Ware prefers to other remedies the application to the eye, itself, of one or two drops of ether, and the occasional rubbing of the eye over the lid with the point of the finger, first moistened with a weak volatile or mercurial liniment.

The best oculists place very little reliance on any of the above means in a fully formed cataract, or one which has existed for any time; and consider the only successful method of removing the opaque lens or capsule to be by a surgical operation. But there are certain cases in which the completest removal of the obstruction would not restore sight, and in which, therefore, it would be improper to have recourse to an operation. The retina, or expansion of the optic nerve, may be quite insensible, and, of course, the freest passage for the rays of light would contribute nothing to the restoration of vision. We have reason to fear this insensible state of the retina, when there has been a long-continued inflammation of the eye, particularly affecting the inner parts of it; when there has been head-ache, with great pain of the eye and eye-brow, and when the patient is quite unable to distinguish a bright light from total darkness. In such cases, the removal of the cataract would be of no service, and the operation is unadvisable. The operation is not to be hastily advised in cases of cataract arising from external violence, as these often disappear spontaneously; and some general and internal remedies may be employed, as blood-letting, purgatives, and mercurial alteratives. Some have advised that there should be no operation, where only one eye is affected with cataract, on the ground that one eye is sufficient for the purposes of life, and that there is a danger of the sight being imperfect from the two eyes not performing their functions correctly alike. This last objection is disproved by numerous cases where the vision was perfect, when one of the eyes had been operated upon: and the

first might be a good reason for letting the cataract alone, were we certain that the other eye would keep well; but, from the wonderful sympathy between the two eyes, there is reason to fear that some morbid action may take place in the other; whereas it is not uncommon for a diseased action to be checked in one eye, where the operation for cataract has been performed in the other. When there is a cataract on both eyes, it is not advantageous to operate on one immediately after the other, as the inflammation excited even by the operation on one eye is apt to be too great in the eye operated upon, and also to cause inflammation in the other by sympathy; and an operation performed nearly at the same time on both eyes is likely to increase greatly the chance of hurtful excitement. It is a question of considerable importance, whether it is proper to operate for a cataract on children at a very early age, that is, before they have discretion to understand the propriety of an operation, and firmness to submit to it. There are many arguments conclusive of the propriety of an early operation, as arising both from the nature of cataract, and from the important collateral questions connected with the subject. Children must be subjected to many restraints, and must have many things done to them very disagreeable to their feelings, and even inflicting much present pain; but when we consider that the purpose of the operation is to give the exercise of a sense so necessary, both for enjoyment and education, it must at once appear a cruel conduct, to deprive them of the use of it for so many of the early years of life. All that is required is to keep the little patient's body, and especially the eye, steady. Besides, in the lapse of years, there is no knowing what untoward circumstances may take place in the cataract; it may contract adhesions to the neighbouring parts, and so be difficult or impossible to be removed by any operation whatever. The state of the cataract in infants is generally more favourable for an operation than at any

future period. The cataract is generally fluid, and requires merely the free rupture of the capsule; and this capsule, though opaque, is tender, and easily removed; and the milky fluid is soon removed by absorption. If the cataract should be soft, it is commonly of that pulpy softness, that is easily dissolved by the aqueous humour, after the capsule has been lacerated. Even if the cataract should be hard, it is as easily depressed as in an adult. Mr. Gibson, of Manchester, who strongly urges the propriety of couching, even in very young subjects, thinks that even if a surgeon had difficulties to encounter which do not occur in adults, the invaluable benefit conferred by enabling an infant to become an intelligent being, like other children, instead of remaining in a state approaching to idiotism, would incline him to run some risk of failure, and to make more than common exertion, especially as there is little chance of injuring the eye, when proper precautions are used. As additional arguments for couching infants, it has been urged, that in all probability the eye, when long allowed to lie passive, without any exercise of its powers, is apt to lose them, so that the patient is little benefited by an operation; and also, that the eye of those born blind is apt to acquire a restless and rolling motion, and the patient loses all control over it. In operating, it is not thought advisable to use any instrument for fixing the eye, as the pressure occasioned by all such contrivances, is apt to cause a sudden protrusion and loss of what is called the vitreous humour of the eye. It is not thought necessary to describe the different modes of operating for cataract; as these can only be properly understood and appreciated by medical men, an early resort to the advice of whom, is very important in all affections of the eye.

CLOSURE OF THE PUPIL. The operations of depression or extraction of the lens for the cure of cataract, are sometimes followed by a vehement inflammation of the membranes of the

eye, especially of the iris, terminating in adhesion; which occasions the pupil to be almost or entirely shut, of which the necessary consequence is a diminution, and afterwards a total loss of sight; the same effect may also occur from inflammation of the internal structure of the eye, occurring spontaneously. There is no help for this closure, but making an artificial opening in the iris, as a substitute for the pupil, either by a simple division of the fibres of the iris, or by cutting out a portion of that membrane, or by detaching the iris from the ciliary processes. The cases in which operations are advisable, and the modes of performing them, are subjects for the consideration of the most skilful oculists, and by far too subtle to be treated of in a popular work.

OPACITY OF THE CORNEA is a consequence of obstinate chronic ophthalmia. The pupil and iris are discernible through a kind of cloudiness, and the patient is not quite deprived of sight, but sees things as it were through a mist. The veins of the anterior part of the eye being relaxed by the long continuance of inflammation, become turgid and prominent; they afterwards become irregular and knotty. Soon after, some reddish streaks are perceived, and in the spaces between these a thin milky fluid is effused. The whitish superficial speck which results, is called a *nebula*. There may be either one speck, or several distinct ones. Though this opacity may at first occupy only a small part of the cornea, yet, if left to itself, it advances towards the centre of it, and a dense, opaque membrane is formed, which obstructs the sight partially or totally.

Our first object, in the treatment of this affection, is to make the turgid veins contract, by the use of astringent ointments or washes. There is an ointment called Janin's ophthalmic ointment, which has been found effectual when the opacity is recent, and not very extensive. This ointment is made by mixing thoroughly together two drachms of prepared tully, two drachms

of Armenian bole, one drachm of the gray oxide of mercury, and half an ounce of hog's lard. When first used, the quantity of hog's lard must be doubled. A similar purpose is served by the diluted citrine ointment. If these applications fail, the enlarged veins which run to the opaque part must be cut across; they should be allowed to bleed freely, and fomentations should be used to encourage this. The eye should not be opened afterwards, for twenty-four hours. A tepid wash of rose-water and milk should then be applied two or three times a day. The nebula often disappears very quickly after this operation. But the use of astringents and ophthalmic ointments for some time, will be proper for preventing the recurrence of the complaint.

LEUCOMA denotes a white opacity of the cornea, not superficial like the nebula, but owing to a dense coagulating lymph poured out from the arteries into the substance of the cornea, in consequence of violent acute inflammation. When recent, this opacity is of a clear milky colour, but when of older date, it becomes pearl-coloured. If the organization of the cornea be not destroyed, the leucoma may be expected to disperse by the means employed for the cure of inflammation: that is, by general and local blood-letting, with other antiphlogistic remedies, and emollient applications to the eye in the first stage of the disease, and slightly astringent washes in the second; these astringent applications cause the absorbents to remove the deposited lymph, and thus restore the transparency of the cornea. In cases of longer standing, our hopes of a cure are not at all sanguine; stimulating applications may be tried, and must be persevered in for ten or twelve weeks. Operations on the part for the cure of leucoma are generally unavailing.

STAPHYLOMA. This is a disease of the eye-ball, in which the clear part of the eye loses its transparency, rises above the level of the eye and sometimes even projects beyond the eye-lids.

It is attended with complete loss of sight, and is very often the consequence of that species of ophthalmia which occurs in very young children, accompanied with a profuse discharge of purulent matter, and called by the common people the *gum*. It is also produced by the small-pox, and then chiefly when the pustules are dry, and the scabs fall off. As this disease of sight is incurable, it is best to let it alone, unless it grows so fast as to come out between the eye-lids, and occasion great pain and deformity to the patient. When this takes place, it is one of the most alarming maladies that can happen to the eye; for, as it can then no longer be covered by the eye-lids, it is exposed to the air, and to the friction of the eye-lashes; the eye, in consequence, becomes painful and inflamed, the tears flow down the cheeks, the other eye is affected by sympathy, and the diseased one ulcerates. It has been attempted to reduce the size of the staphyloma by an issue or artificial ulcer at the bottom of the swelled part, but this has not been found to answer, and it is rather recommended to cut off the top of the projecting part, by which some of the humours of the eye are evacuated, and the swelling subsides, so as to allow the eye-lids to cover the ball. A degree of inflammation follows, when the eye is to be covered with a poultice of bread and milk. Purulent matter is formed; the edge of the surface from which the projection was cut, becomes red, contracts, and daily diminishes, so that at last the wound is entirely closed, and an opportunity is given for the insertion of an artificial eye.

EXOPHTHALMIA signifies the protrusion of the eye from its socket, while the globe is of the natural size, and free from disease. It is thrust towards the temple, or on the cheek, and vision is quite lost. This occurrence may arise from violent concussion of the head, from a thrust with a stick or instrument, passing between the orbit and the eye-ball, or from tumours within the orbit, which, as they gradually enlarge, push the eye-

ball from its socket. There is generally no great difficulty in replacing the eye, after the protruding cause is removed; and when the eye is replaced, inflammation is to be kept down by cooling topical applications, and by general or local blood-letting. If there should be any suppuration, care must be taken to procure a free and early vent for the matter. When a gradually increasing tumour has occasioned the displacement of the eye, the tumour must be removed by the proper surgical means, before the eye can be put back into its place. Whatever be the cause of the injury, its cure is always the easier the more recent it is.

DROPSY OF THE EYE. In some cases, the vitreous humour of the eye is disorganized and broken down, and the aqueous humour is increased in quantity, causing the eye-ball to assume an oval shape, ending at the point of the cornea; it then enlarges to such an extent, that it projects from the orbit, and cannot be covered by the eyelids. This disease is sometimes produced by blows on the eye, or on the adjoining temple, sometimes by an obstinate internal ophthalmia. Professor Beer, of Vienna, has seen the dropsy of the eye brought on by too long continuance of the use of mercury in the ophthalmia of gouty subjects. The cure consists in evacuating the fluid contents of the eye by a puncture, removing a small portion of the cornea, and exciting a slight degree of inflammation and suppuration; taking care that the inflammation does not go too far. When the operation is successful, the eye-ball diminishes in size, and gradually returns into the orbit. It is hardly necessary to mention, that vision has, long before this, been irrecoverably gone.

CANCER OF THE EYE. There is an affection of the eye which is thought to be of a cancerous nature, which is productive of great pain, and, at last, of death, unless the eye is completely extirpated. This complaint sometimes occurs after obstinate ophthalmia, sometimes after a blow on the eye, or after

wounds, or staphyloma; and often after fungous excrescences, which form on the surface, or in the interior parts of the eye. The disease is said to be sometimes caused by irritating applications; but very often the causes are constitutional. It is most frequent in childhood. This disorder of the eye is commonly preceded by headache, and an unusual heat in the organ, with an itching about it and the neighbouring parts. There is a considerable flow of tears; light is borne with difficulty at first, and soon becomes quite intolerable. To the itching succeeds a pricking sensation, and afterwards pains which are acute and lancinating. The eye enlarges and assumes a dull and livid hue, and its surface is rough and irregular. The cornea at length ulcerates and bursts; fungous growths project from the opening, which discharge a purulent fetid matter. As the disease advances, the fungous growths increase, and become livid. There are frequent discharges of blood. The pains are now incessant; the neighbouring bones and other parts become carious and ulcerated; and a miserable death ensues. As we have stated above, there is no way of saving the life, but by extirpating the eye. For the method of doing this, we refer to books on surgery. The extirpation should be complete; and the lacrymal gland should also be removed. The antiphlogistic plan is to be continued for some days after the operation.

AMAUROSIS, called also *gutta serena*, or *black cataract*. This signifies a decay or loss of sight, when no defect is visible in the eye, excepting an enlargement of the pupil, and its being insensible to the stimulus of light. The approach of amaurosis is generally attended with pain in the head, which troubles the patient for a considerable length of time; there are various depravations of sight, as the appearances of stars or bright spots dancing before him; or he is sensible of something wrong about the sight when the candles are lighted. The patient feels as if some dirt or dust were upon his eyes

and is frequently wiping them; sometimes he complains of a tension of the eye-ball, which is particularly troublesome. Whenever this sensation is experienced, the eye-sight becomes weak, and when it goes off, the patient is again able to see better. Amaurosis commonly attacks both eyes at once, and in those cases where the one is affected before the other, the interval is but short. Before the blindness is quite complete, patients can sometimes see, when an object is presented, at the side of the eye.

Amaurosis is owing to a palsy of the retina, or injury of the optic nerve in some part of its course, from a tumour, or from a fullness of the adjacent blood-vessels. It may arise from external injuries done to the head, from the suppression of periodical habitual evacuations, from the effects of deadly night-shade and other sedative poisons, from the absorption of the venereal virus, from great exertions of strength when the body is plethoric; and is sometimes a sequel of certain fevers. In many cases, no apparent cause can be assigned.

When amaurosis has been preceded by frequent head-aches, with much pain in some part of the eye; when it occurs after fevers, or when it happens to the aged and infirm, a cure is hardly to be expected. If it occurs in connexion with pregnancy or hysteria, or in young subjects, our hopes are somewhat better.

If a patient makes known his ailments early, he is to be treated, if at all plethoric, by evacuates, by leeching and cupping about the temples, and by an issue in the neck. Some cases have been treated by electricity or galvanism, and some by a course of mercury; others seem to have derived some advantage from frequent emetics, or from acrid powders, which occasioned a discharge from the nose; but in the greater number of cases, the *gutta serena* has proved incurable.

WEEPING EYE, or *fistula lacrymalis*. The most striking symptom of this disease is an involuntary and con-

stant flow of tears over the cheek. At the upper part of the orbit of the eye is situated the lacrymal gland, which secretes the tears. In the healthy state, these are diffused over the surface of the eye-ball by the motion of the lids. The quantity above what is necessary for keeping the eye clean and moist, is taken up at two little points, which may be seen in the living subject, one on each lid, near the inner corner of the eye. These points are the commencement of a little sac and canal, through which the superfluous tears are carried into the nose, where they moisten the lining membrane, or are evaporated by the air we breathe. A disease or obstruction in any part of this canal, hinders the passage of the tears into the nose; and they, therefore, accumulate on the lids, or run over upon the cheek.

Mr. Pott, who wrote with great accuracy on the *fistula lacrymalis*, divides the disease into four stages. 1. A simple dilatation of the sac, and obstruction of the passage to the nose. The sac, upon pressure, discharges a mucus, either quite clean, or a little cloudy; the skin covering the sac being entire, and perfectly free from inflammation. 2. In the second stage, the tumour is somewhat larger, the skin is inflamed, but entire; and the discharge is of a pale yellow or purulent colour. 3. In the third stage, the skin covering the sac has become sloughy, and burst, by which the swelling is lessened; but the mucus which used to discharge itself through the lacrymal points, now comes through the new opening; the passage to the nose is yet not otherwise diseased, than by the thickening of its lining membrane. 4. The passage is totally obliterated, its inside being either ulcerated or filled up with a fungus, and attended sometimes with a caries of the bone underneath.

In the first stage of *fistula lacrymalis*, we attempt to remove the obstruction of the passage by introducing a probe, or by injecting a fluid, by means of a very fine syringe, into the inferior lacrymal points. Warm water is best

at first; and if this does not succeed, a solution of sulphate of zinc, or wine of opium, may be tried. The healthy state of the neighbouring parts is to be attended to, and to be restored by leeches, and the ointments recommended in diseases of the eye or eye-lids. In the second and third stages, when the parts are inflamed and swelled, a proper opening should be made with a lancet; or if the skin has broke, the opening, if necessary, should be dilated. A silver probe is to be pushed into the nasal duct, with force sufficient to overcome the obstruction; and afterwards a silver style, a little smaller than the probe, having a head like a nail, but placed obliquely, is to be left in the passage. It is to be removed for cleaning, once every day for about a week, and afterwards every second or third day. A little warm water should be injected each time into the nose. In many cases, the watering of the eye ceases as soon as the style is introduced. Some wear this style for years; others leave it off in a month or six weeks, and the parts continue well. In the worst cases of the disease, or the fourth stage, an opening must be made through the bones of the nose; and by wearing a style, as above, an artificial passage will be formed. In all cases in which this disease is seen in its early stage, its complete formation should, if possible, be prevented, by leeches to the parts, and such other remedies as the judgment of the physician shall point out to him as proper in each case.

EYE-LIDS, DISEASES OF THE

The eye-lids are subject to various diseases, which are commonly described along with the diseases of the eye. The habitual redness of the eye-lids so prevalent in scrofulous habits, is to be cured by astringent ointments, and general strengthening remedies. Sometimes a hard warty substance grows under the skin of the upper eye-lid, which is scarcely to be removed but by being cut out. A troublesome and painful growth, known commonly by

the name of *stye*, very frequently attacks the eye-lids; it is a kind of boil, in which is slowly formed a thick yellow matter; it may be hastened forward by bread and milk poultices, and discharged by a small puncture when it is ripe. Those who have once had a stye, are very liable to frequent returns of it. *Ectropium* signifies a turning out of one or both of the eye-lids. It may arise from elongation or swelling of the membranous lining of the eye-lids, or from a contraction of the outer skin of the eye-lids. The first kind may be the consequence of obstinate chronic ophthalmia, in scrofulous and relaxed constitutions; or it may happen after small-pox. The second species, or that turning out of the eye-lids which is owing to a contraction of the skin, may arise from the pits and scars left by small-pox, or by burns; or from the cutting out of a tumour when sufficient skin has not been left. The effects of this turning out of the eye-lids are very troublesome. There is a continual discharge of tears over the cheek, a dryness of the eye-ball, frequent attacks of ophthalmia, intolerance of light, and opacity or ulceration of the cornea. When the first species is slight and recent, the best method is to destroy the elongated and relaxed skin on the inner surface of the eye-lid, by completely turning it out and rubbing it with lunar caustic, taking care to prevent the eye from suffering by the caustic, by washing the eye with new milk. It will be necessary to use the caustic for several days, till there be a sufficient destruction of the internal membrane of the eye-lid, and of its inner surface. In favourable cases, this treatment is followed by the gradual return of the eye-lid to its natural position. The cure of the second species is more difficult. As it sometimes happens from the contraction occasioned by a cicatrix, it has been proposed to cut this through; but no great success has attended this operation. The cutting out of a portion of the membrane lining the eye-lid is the method most likely to succeed in remedying

the eversion of that part. *Entropium* is the reverse of the former case, and is a turning in of the eye-lids; it is also called *trichiasis*, from a Greek word signifying a *hair*, on account of the irritation produced by the eye-lashes fretting the ball of the eye. This turning in of the eye-lids is a frequent consequence of ulcers and scars of their margin, called the *tarsus*; or of ophthalmia arising from scrofula or small-pox. The cure consists in removing a certain longitudinal portion of the skin of the affected eye-lid, near the tarsus. The lips of the wound are to be brought together by slips of adhesive plaster. A cicatrix forms, and the lid is turned out to its natural position. There is another kind of trichiasis, in which one or more hairs are turned in, without any alteration in the position of the eye-lid. It is difficult to accomplish a cure, as it is found that neither the pulling out of the hairs, nor burning the situation of the roots, can be at all depended on. Sometimes the upper eye-lid falls down, and cannot be raised or kept up by the action of the voluntary muscles. This may arise from a redundancy of the skin, or from the relaxation of the muscles destined to raise the eye-lid. When it proceeds from the first cause, a portion of the redundant skin is to be removed; and when from the second, the eye and surrounding parts are to be bathed frequently with very cold water; and the eye-brow and eye-lid are to be rubbed with the camphor liniment, or with a liniment containing a little of the tincture of cantharides. The shower bath, and bark, as correctors of debility, may be conjoined with the other methods employed.

EAR, DISEASES OF THE

1. The external ear may be lost by violence, as by cutting, or the bite of an animal. If we see it soon after an accident, and find it much lacerated, we are to attempt its reunion by plasters, and even by stitches, if necessary. When a bandage is applied, it should be moderately tight, as pressure

in this place gives considerable uneasiness. Wounds, and loss of a part, or even the whole, of the external ear, do not always occasion deafness. If this occurs from such a cause, an ear-trumpet or similar contrivance must be used. 2. Sometimes the external ear is not perforated, and deafness is the consequence, at least in general. This is to be remedied by a surgical operation, varying according to the nature of the obstruction. If it be merely a membrane stretching across the passage, it is enough simply to remove the obstruction; but if the cartilaginous or bony sides cohere, the cure is of much greater difficulty. When the obstruction is not quite close to the membrane of the drum, it has been proposed to touch it with caustic, and to introduce a little tent to keep the passage open for some time afterwards. 3. Foreign bodies, as peas, bits of glass, or cherry-stones, may get into the ear, and occasion great pain of the part, as well as impaired hearing. Such bodies have been known to occasion for many years excruciating pain of the head, palsy, convulsions, and other distressing symptoms; all which have speedily ceased when a skilful hand has extracted the offending body. Such bodies should be forced out, if possible, by the injection of warm water, and the application of a small scoop or bent probe. Worms have been known to produce very violent symptoms, by being hatched in the ear. When there is disease, as ulceration or suppuration in the ear, insects are attracted by it, and deposit their eggs, which in time produce worms. Patients so affected should take care to stop the ear when they go to sleep, in summer and autumn, as Morgagni advises. A slight infusion of tobacco in oil of almonds may be dropped into the ear; and this proves fatal to worms. 4. A very frequent cause of deafness or impaired hearing, is the obstruction of the passage by thickened or hardened wax. The symptoms arising from this cause are deafness, a sensation as of a noise or clash when eating, or of heavy sounds, as of a hammer. This

kind of deafness is not very difficult of cure. A little olive oil, or oil of almonds, is to be dropped into the ear, and retained there by a piece of cotton; and when the wax is softened, it is to be taken out with a small scooped instrument. Injecting warm water with a little soap, by a syringe, is a method of getting rid of the hardened wax, equally simple and efficacious. 5. A deficiency of the wax may occasion a degree of deafness. When this is the case, we are to drop in two drops every night of the following mixture: pyroligneous acid, sulphuric ether, oil of turpentine, equal parts; three drachms of the tincture of meadow saffron in six ounces of distilled water, are to be taken at the same time. The bowels must be kept gently open. When the wax is of bad quality, which is known by its deviation from the healthy colour and consistence, it may be improved by frequently washing the passage; and giving, once or twice a day, a wine-glassful of the infusion of quassia, with a tea-spoonful of equal parts of rhubarb and magnesia. 6. Discharges of matter take place from the passage, in consequence of inflammation going on to suppuration, from scrofulous ulcers, from abscesses after fevers, from small-pox, measles, and other causes. These discharges, not unfrequently, are attended with the loss of the small bones; and, in general, total deafness is the consequence. Exposure to cold frequently produces inflammation about the ear, attended with very acute pain, (commonly termed ear-ache,) which continues very troublesome, and even alarming, till the patient is relieved by the discharge of matter. This inflammatory state is to be treated by local bleeding, the injection of tepid water, and by fomentations; and the passage should be protected from cold air, by the introduction of wool or cotton. 7. Sometimes there is disease in the drum, attended with fetid, purulent discharge, which, making its appearance at the internal opening, shows that the membrane of the drum is destroyed; and so much disease is in the internal

parts, that the small bones are discharged externally. In time, a continual discharge from the ear takes place, and the disorganization is so complete, that a total loss of hearing is the consequence. If this disease be noticed in its early stage; if there is acute pain, followed by a discharge of matter, we know it is from inflammation, and we are to palliate or remove this by topical bleedings, and other antiphlogistic means; and are on no account to inject stimulating spirituous fluids. When the disease threatens to be more chronic, we are to use blisters and setons, as auxiliaries to our cure; to employ laxative medicines, and to foment the part; and when there is little active inflammation, to throw in astringent injections, as of sulphate of zinc. If there are fungous growths, they are to be touched with caustic. 8. Sometimes there is deafness from insensibility of the nerves of hearing, though the structure of the parts may be perfect. If we can ascertain this to be the case, we are advised to put the patient on low diet, and to give saline purgatives once or twice a week, applying blisters occasionally behind the ears. The application of electricity may be tried.

EXCORIATION.

Excoriation is a loss of the cuticle, or scarf-skin. Excoriation or chafing of the skin is very liable to happen, especially in infants, at those places of the skin that are often in contact with each other, as the ears, neck, arm-pits, and groins. The best way to prevent this tendency, is to keep the parts perfectly clean and dry, and to dust them with prepared tummy, or chalk finely powdered. If there be a discharge of matter from the excoriated parts, great care and attention are requisite in the healing of them. If the running has continued long, there is some danger in checking it too suddenly; but if proper precautions are taken to prevent this, and to relieve the system by gentle purging, there is no reason why they should not be healed up quickly,

as there is always risk of the inflammation spreading to some internal part. When chafing can not be checked by the tutty, a wash of white vitriol is to be used; eight grains of the vitriol to four ounces of rose-water. If this does not prevent the excoriations, the parts are to be washed pretty frequently with some weak stimulant lotion, as lime-water and milk, and they are to be covered with brown cerate or spermaceti ointment, or a liniment made of equal parts of hog's lard and beeswax.

GANGRENE, OR MORTIFICATION.

The death of a portion of the body, while the rest continues alive, often in a sound state, is denominated gangrene or mortification. When any part of the body loses all motion, sensibility, and natural heat, and becomes of a brown, livid, or black colour, it is said to be affected with *sphacelus*, that is, complete death or mortification. As long as any sensibility, motion, and warmth continue, the state of the disorder is termed *gangrene*.

Mortification is the sequel of diseases both of excitement and debility. In inflammations of the external parts, which terminate in mortification, the process observed is as follows: the pain ceases, the purulent matter becomes acrid and sanious; bubbles of air are set at liberty, collecting in small vesications under the skin, or distending the whole organ by an emphysematous swelling. The blood is coagulated in the vessels of the gangrened part, and the circulation can not be restored. In many cases, a slight delirium comes on, followed either by dejection of spirits or calmness of mind; but in each case attended with a peculiarly wild expression of countenance; though sometimes with a very peculiar expression of serenity, and a blackness under the eyes. The pulse is usually quick, low, and often intermitting. In the earliest stages, deep incisions are attended with a discharge of blood, still florid; but the skin, the muscles, and the cellular membrane, soon melt down into a brownish offensive mass. We con-

clude that similar processes take place in the internal parts when they become mortified. When this occurs in strangulated hernia, or in inflammation of the bowels, a remission of the violent pain takes place, and the patient and his friends are deluded with the hope of complete relief; but the experienced physician knows the treacherous symptom, and must not deceive them with false hopes. There is a peculiar kind of mortification called *dry gangrene*, in which the disease begins in one of the toes, particularly in old people, and very often after a person has been paring a corn or toe-nail. It sometimes stops spontaneously, and deprives the patient of some of his toes, or even of his foot and leg, as cleanly as if it had been amputated by a surgical operation: at other times it has been successfully treated by giving large doses of opium. In this form of mortification, the parts affected are perfectly dry, hard, and not liable to run into putrefaction.

The causes of mortification are general or local. Those which affect the general system, are the violent inflammatory fevers, or the jail and hospital fever; as also scurvy and dropsy, long-continued or intense cold, and some internal changes, which we can not trace nor explain. The local causes of mortification are numerous. Some of them are, burns, excessive cold, the application of caustics, the strangulation of a part, as in hernia, or the tying of tumours; severe contusions, as gun-shot wounds, bad fractures, violent inflammation, urine effused in the cellular substance, pressure on large blood-vessels, by a ligature or by tumours, wounds of large vessels. Long continuance in one posture, as when a person is confined to bed, gives occasion to gangrene of the parts where the bones have the least flesh upon them, and which are therefore much exposed to pressure; as the shoulder-blades, the haunch-bones, and the lower part of the spine. The hospital gangrene is produced by some indescribable state of the air in hospitals, jails, and ships.

During its prevalence, the smallest scratch or ulcer is apt to turn to a fatal gangrene. In dropsy, occurring in a broken-down and debilitated constitution, if a few punctures be made to let out the effused fluid, or a blister be applied, these are too apt to run into gangrene, and a prudent surgeon will therefore not risk the experiment; it is also not unusual for spontaneous vesications to form and break on such dropsical limbs, and to go on to gangrene. The local mortifications which happen in old people, are generally owing to ossification of the arteries.

When mortification arises from great debility, from ossification of the arteries, or obstructions that we can not remove, a cure is not to be expected. Internal mortifications are generally beyond the reach of medicine; but as very threatening symptoms, apparently connected with internal mortifications, have sometimes disappeared, we must attempt all that art can suggest.

When inflammation is so violent and strong as to give reason to fear that it will end in mortification, it is a call for us to use with great diligence, bleeding, purging, low diet, cold applications, and the other means for abating it; taking care that we do not continue them too long, lest we add to the debility and exhaustion which are to follow.

When the mortification has fairly begun, our remedies must be very different from those which counteract inflammation. We are now to prevent debility by giving a nourishing diet and tonics. Of the class of tonics, the most efficacious is the bark; and in a great variety of cases, the good effects of the Peruvian bark are very remarkable. Small quantities of opium and calomel combined, may be given at frequent intervals. When the weakness is very great, the use of wine may occasionally be required, as also ammonia and other diffusible stimulants. We must be careful not to give these remedies when there is any strength of pulse and inflammatory symptoms remaining. When our remedies are successful, and the mortification is about to

cease, a separation takes place at the verge of the sound part, caused by a slight degree of inflammation. But on the contrary, it very often happens that the disease spreads, and death ensues.

Local applications. Some have advised cold lotions near the verge of the mortified part, to check the further progress of inflammation; but fomentations and emollient poultices are commonly preferred. To the common poultices, in some cases, are added powdered charcoal, or yeast, to correct the fetor, and to counteract putrefaction. Stale beer grounds, or port wine, with linseed meal, make a good poultice. Stimulating balsams, hot oils, and the actual cautery, are now entirely disused in the dressing of mortified parts. It is necessary to give vent to putrid matter, and for this purpose pretty deep incisions are required through the dead parts. With a view of allowing dressings to reach the sound part, and to excite inflammation, which commonly takes place at the verge of the mortified part when it terminates favourably, and separates it from the sound, scarifications have been recommended; but they are always attended with risk of increased inflammation, and we never can be sure how much the disease extends below the surface. We may, therefore, be cutting a superficial part, while the evil is extending close to the bone.

After the mortified parts have completely separated, and a healthy suppurating ulcer is left, the latter is to be treated by common poultices, until granulations arise, when the use of strips of adhesive plaster applied over the surface of the ulcer, and proper bandages, will, in general, cause it speedily to heal over.

GLEET.

Gleet is a continued running or discharge, after the inflammatory symptoms of a clap have ceased. The discharge is commonly thin and clear, and is not accompanied with pain or scalding in making water. It proceeds from

relaxation or debility of the parts, and is best cured by some astringent or stimulant application to them; and at the same time, the general health is to be promoted by the use of bark, iron, and warm bathing. The best local applications are those made of the sulphate of zinc, in the proportion of two grains to the ounce, or one grain of corrosive sublimate to six ounces of water; and they require to be pretty frequently thrown up. They ought to excite a little pain on their first being used. If we do not succeed by astringent injections, we may be obliged to use bougies, either clean, or slightly touched with basilicon ointment. Balsam of copaiba, in the dose of a drachm three or four times a day, or the tincture of cantharides, ten drops, as often, may be given internally. The cubebs, in doses of half a drachm three times a day, or twenty grains of powdered uvæ ursi, will often be found beneficial prescriptions. If we find no benefit from the treatment above recommended, we judge that the gleet does not arise from mere relaxation of the parts or from habit, but from unhealthy action of the glands in the urinary passage, and we attempt the cure of this by bougies, and by blisters to the perineum. If the constitution is scrofulous, the remedies for that disease must be conjoined with our local applications. Another cause of gleet is strictures in the urethra. In such cases, our attention is to be directed to the cure of the strictures, for which we refer to that article.

GONORRHOEA.

Clap, or gonorrhœa, is a discharge of yellow fluid from the urethra, depending upon an inflammation affecting the lining membrane of that canal, produced most generally from the application of morbid matter, and ordinarily following an impure connection. When it depends upon the venereal virus, the time that elapses between the application of the matter and the commencement of the running, varies in different cases: from two days to three or four weeks, but the most usual time is from

six to twelve days. The disease begins with an itching and soreness about the private parts, especially along the urethra; soon after which a slight discharge of whitish matter takes place, and there is heat and pain in making water. In the course of a few days, the matter discharged is increased in quantity, and becomes of a greenish or yellowish colour; there is redness and inflammation about the parts, the stream of urine becomes smaller, and the attempt to pass it is attended with much pain and scalding. It sometimes happens, that when the inflammation is considerable, there is a slight discharge of blood. The prepuce often swells so much that it can not be drawn back, which symptom is called a *phymosis*; or, being drawn back, it can not be brought forward again, which occurrence is termed *paraphymosis*. The neighbouring parts suffer. The bladder becomes irritable, and there is frequent call to make water; also uneasiness about the rectum. One, or both, of the testicles frequently swell, occasioning great pain, and some degree of fever. Chordee is also not an unusual symptom. The time during which a clap will continue, depends much on the conduct of the patient himself; on the timely or late use of the proper remedies; and in some cases, on the acrimony of the infecting matter. If the proper means are early used, and if the patient is guilty of no excesses, sensuality, or irregular living, the matter will, in the course of a fortnight or three weeks, become thick, and somewhat viscid; it will then gradually diminish, and at last cease entirely, together with all the other unpleasant symptoms; but if the same riotous living be continued which brought it on, if indulgence in wine and other stimulants be persisted in, the symptoms will increase in severity, continue for a long time, and be followed by very disagreeable and painful consequences; as gleet, warts, and strictures in the urethra.

If there be much inflammatory action when the patient is first seen, if

the pulse be quick and strong, if there be very great heat, pain, and difficulty in making water, it will be proper to employ bleeding, both from the arm and by leeches applied along the course of the urethra. The bowels are to be kept open by mild purgatives, which do not irritate the rectum and neighbouring parts, such as castor oil, and the neutral salts, dissolved in a considerable quantity of water; the patient is to drink plentifully of mild diluent drinks, as barley water or flaxseed-tea, adding to them some dissolved gum arabic; all irritation is to be avoided, the diet is to be spare, no spirituous or fermented liquors are to be used, and quietness and rest are to be enjoined. If the symptoms are more moderate, we may dispense with the bleeding, taking care to observe the other directions given above. When the running has continued for a week or ten days, if there be no other bad symptoms present, it is to be checked by the prudent use of astringent washes, which are to be thrown by a syringe into the urethra. Such washes may be made by dissolving twenty grains of sugar of lead or of white vitriol in eight ounces of rose-water, or eight grains of blue vitriol in eight ounces of water. It is to be particularly noted, that it is very dangerous to use astringent injections on the first appearance of gonorrhœa, or to use them strong at any time; there is great risk of inducing inflammation and swelling of the testicle, or of causing strictures in the course of the urethra. If a painful swelling of the testicle occur, cooling lotions are to be applied to the part, and it may be necessary to use even general and local bleeding. A return of the running is to be solicited by warm fomentations to the penis, and injections of warm milk into the urethra. Without entering into the controversy about the identity or difference of the matter, of syphilis and gonorrhœa, we may state, that it is seldom necessary to make use of mercury in gonorrhœa. Swellings of the groin are to be prevented, if possible, from coming to a suppurat-

by the use of cold lotions made of a solution of sugar of lead; by a spare diet, and by giving cooling purgatives. We are to attempt the removal of phymosis or paraphymosis by the application of cold, or by diminishing the swelling by means of leeches; and it may be necessary, if the tightness can not be removed by other means, to cut through the prepuce. During the whole of the disease, it will be necessary to pay great attention to keep the parts clean, and to prevent excoriation and ulceration from the lodgement of acrid matter. The distressing symptom called chordee, is to be obviated by washing the parts with a solution of opium, or with the tincture, and keeping cloths wet with either to the parts: a large opiate is to be taken internally at bedtime. The disease in women requires the same general plan of treatment; but it is less obstinate in them, from the greater shortness of the urinary passages. It much resembles what is commonly known by the name of whites.

GULLET, AFFECTIONS OF THE

At the back part of the mouth there are two passages downwards; the anterior is that which leads into the wind-pipe; and the posterior is the pharynx or commencement of the *gullet*, or membranous tube, by which the food and other substances pass into the stomach.

Strictures of the gullet. Stricture is a contraction of part of the tube or canal. The most remarkable symptom of such contraction in the gullet is the difficulty of swallowing, which is greater or less in proportion to the obstruction. Sometimes no solid food can pass down, and fluids only with great difficulty, and in very small quantities. Sometimes there is pain extending to the ear, returning at intervals, and continuing for a considerable time, even when there is no effort made to swallow. If the stricture be from a permanent cause, a bougie passed downwards is stopped; and such strictures sometimes occasion ulceration at a distance from

themselves and nearer the orifice of the stomach. Sometimes the strictures are so complete, that it is impossible for the patient to swallow any thing whatever; nourishment can be conveyed only by clyster; and in general he soon dies emaciated for want of food. The only treatment in cases of structure of the gullet, which can be put in practice, is the passing of a bougie through the stricture, if it will admit of this, and employing one of larger size in proportion as the dilatation of the stricture will allow of its introduction. Some surgeons venture on the introduction of a bougie armed with some caustic substance to destroy the structure by causing it to ulcerate. Liquid nourishment may be conveyed into the stomach by a hollow bougie.

Stricture from spasm. This is a very common symptom of hysterics; and when violent must be relieved by antispasmodics and anodynes, applied both internally and externally. Mustard poultices, ammonia, or other rubefacients are to be employed, and a blister may be required; but if the threatening symptoms of apoplexy or of violent pain be present, it will not be prudent to administer either opiates or stimulants, nor to wait for the operation of a blister, but we must bleed largely or open the jugular vein or temporal artery. If the spasm be occasioned by acrid or poisonous substances having been swallowed, the parts must be sheathed by mucilages, oil, or milk, and we must guard against inflammation at the same time, by bleeding and other antiphlogistic remedies; the bowels being kept freely open.

Foreign bodies in the gullet. It is not at all an uncommon occurrence for foreign bodies to stick in the gullet, as pieces of crust, or meat not completely chewed, or small bones, beans, stones, pins, or pieces of money. Some of these would produce a very bad effect if not quickly removed from the gullet; and perhaps still worse, if pushed down into the stomach; but sometimes pretty large bodies have passed downwards into the stomach, and have been dis-

charged by stool in a few days, without any inconvenience. The contrivances for removing bodies which have stuck in the gullet, must be left to the ingenuity of the medical man who sees the case. Pins and other sharp bodies, when they have stuck in the throat, have been returned by swallowing a piece of tough meat tied to a strong thread, and then pulled up again. If the detained body can be with safety pushed down, the probang, a flexible piece of whalebone, with a piece of sponge secured to its end, is the proper instrument. If the bodies can not be easily moved up or down, endeavours should not be continued long, lest inflammation come on. When endeavours fail, the patient must be treated as if labouring under an inflammatory disease, and the same treatment will be required if an inflammation takes place in the part, after the obstructing body is removed. A proper degree of agitation has sometimes succeeded in removing the body sticking in the gullet, better than instruments. Thus, a blow on the back has often forced up a substance that has stuck in the gullet or passed into the wind-pipe. Pins which have stuck in the gullet have been discharged by riding on a horse or in a carriage. In the London Medical Transactions, is an account of a crown-piece which a man swallowed. An emetic was given, but without discharging the piece, which, after twenty months, was brought up by spontaneous vomiting. If the respiration is dangerously impeded by substances arrested in the gullet, it will be necessary to make an opening into the wind-pipe.

GRAVEL AND STONE.

The urine, in a state of health, is one of the most compound fluids of the animal system, consisting of various acids, alkalies, calcareous earth, and other materials; and it is, therefore, not surprising, that, under the injurious and often contrary influence of the many deteriorating causes to which man is incessantly exposed, the natural affinity between these various elements

should frequently be subverted, and give rise to a deposition of one or other of them, thus producing the complaint called gravel.

The urinary sand or gravel deposited on the sides or bottom of a receiving vessel is of two kinds, *red* and *white*; and it is of great importance to distinguish the one from the other, as they proceed from different causes, and require a different mode of treatment. The symptoms of *red* gravel are well known. The shade of colour may vary from a reddish brown, or pink, to a perfect red. In such cases the urinary secretion is generally small in quantity, and high coloured, and the disease inflammatory: the nearer the deposit approaches to a perfect *red*, the more severe in general are the symptoms.

White gravel is less common, but has long been observed to be attended by very distressing symptoms. These consist in great irritability of the system, and derangement of the digestive organs generally. There is often a sallow, haggard expression of countenance; and as the disease proceeds, symptoms somewhat analogous to those of diabetes begin to appear, such as great languor and depression of spirits, coldness of the legs, and other symptoms of extreme debility. The urine is invariably pale, and voided in greater quantity than usual; and after standing, for a greater or less time, always deposits a most copious precipitate of a white impalpable powder. In all such cases, the urine is extremely prone to decomposition, and emits a most disgusting smell.

In many persons, there is an hereditary tendency to this complaint. General indolence, or a sedentary life, or an excessive indulgence in fermented liquors, and the luxuries of the table, become predisposing causes in others. But the chief cause seems to be a want of constitutional vigour, and especially in the digestive organs; and hence, the periods of life in which this disease occurs most frequently, are from infancy to the age of puberty, and in declining years: while it is rarely met with

during the busy and restless term of the prime of life. A cold and variable climate often becomes a cause of gravel: calculous complaints being seldom met with in warm climates. The drinking of hard water often influences very sensibly the state of the complaint. White gravel may often be very distinctly traced to an injury of the back.

The urine, in a healthy state, is always an acid secretion, and it is the excess of its acid that holds the earthy salts it contains in solution. If, from any cause, it be deprived of this excess, or, in other words, the secretion of its acid be unduly diminished, the earthy parts are no longer held in solution, and a tendency to form *white* sand or gravel immediately commences. If, on the contrary, the acid be in greater excess than usual, instead of deficient, or if the natural secretion of the earthy constituents of the urine be deficient, while the acid retains its usual measure, the acid itself has a tendency to form a deposit, and hence the modification of *red* sand or gravel that is so frequently found coating the bottom of chamber utensils.

The *red gravel* is by far the most frequent kind of deposit, and the most effectual remedies for it are the alkalis, and the alkaline carbonates, such as lime-water, Brandish's alkaline solution, the carbonate of potash or soda, and magnesia. But to be really useful, they must be conjoined with a proper diet and regimen, alteratives and aperients; for it ought never to be forgotten, in the treatment of gravel and stone, that they owe their formation chiefly to an irregular and vitiated action of the digestive organs, which will invariably require this conjunction, in order to the accomplishment of a permanently beneficial effect.

Half a drachm, or a drachm of carbonate of potass, or soda, may be given dissolved in water, two or three times a day, with an alterative pill of blue mass five grains, ipecacuanha one grain, rhubarb three grains; or four grains of the compound calomel pill every night; the following draught being taken every

morning, or every other morning, as a gentle and suitable aperient: Take of Rochelle salt two or three drachms; carbonate of soda one scruple; water, three table-spoonfuls—mix, and after adding a table-spoonful of lemon-juice, or thirty grains of tartaric acid, let it be drunk immediately.

Sir Everard Home, and Mr. Brande, have strongly recommended magnesia in this species of gravel, and it is of considerable use. Mr. Brande has related a case which yielded to its use after the alkalies previously given had failed. It may be taken either alone, in doses of ten grains twice a day, or combined with the carbonate of soda, in the proportion of six or eight grains of the former, to ten grains of the latter, twice or thrice a day. Or ten grains of magnesia may be dissolved in a draught of soda water, which is an excellent way of administering it.

Ten or fifteen grains of the carbonate of ammonia, twice a day, form likewise a useful medicine, especially in cases where great languor, or weakness and coldness of the stomach, is present. The ammonia is a powerful corrector of acidity, and a most valuable cordial.

A very convenient and valuable mode of combining an alkali with an aperient, and gentle bitter tonic, is the following; it is worthy of particular regard when weakness of the stomach, costiveness and red gravel are combined. Take of carbonate of soda ten grains; Epsom salt half a drachm, or a drachm; compound infusion of gentian three table-spoonfuls; compound tincture of cardamoms a tea-spoonful—mix for a draught, to be taken three times a day. The bowels should be kept gently open by it, and, therefore, the Epsom salt may be either increased or diminished, according to circumstances.

The powder of *uva ursi* is both tonic and astringent, and has been spoken well of, for its virtues in gravel and stone, by physicians of high authority. It may be combined or alternated with the alkalies; and where general debility exists, or there is a discharge of pus-

like matter from the bladder, denoting ulceration, or a very faulty condition of its secreting vessels, it is at once an appropriate and excellent medicine. The dose is from a scruple to a drachm of the powder, twice or thrice a day: or a strong tea may be made by pouring hot water upon the leaves of the plant; to three table-spoonfuls of which may be added ten grains of bi-carbonate of soda, or a tea-spoonful of Brandish's alkaline solution, and drunk thrice a day. In cases of *white* gravel, it may be given in conjunction with the nitric or muriatic acid.

The diet of persons troubled with *red* gravel should be moderate in quantity, and of a nutritious and wholesome quality, consisting principally of fresh animal food, and farinaceous vegetables. All acids, and acescent food, must be carefully avoided, and likewise heavy bread, fat meats, hard-boiled puddings, and soups. Ardent spirits and red wine are altogether objectionable, and but a very small quantity of white wine should be allowed. Soda water should be the common beverage. Jelly or jam made of the common bramble berry will be found useful, taken as an article of diet, and spread on bread instead of butter. This appears to have been highly esteemed by Mr. Pott, a surgeon of great and deserved celebrity in the last century.

Constant and active exercise is of great importance in all gravelly disorders; and flannel should be constantly worn. Sailors and other persons accustomed to constant and laborious exertion in the open air, are very rarely affected with these complaints. M. Magendie, a celebrated physician, has given a striking example of the advantages to be derived from exercise and abstinence, and the mischievous effects of luxury, in the case of a merchant of one of the Hanseatic towns. "In the year 1814, this gentleman," says he, "was possessed of a considerable fortune, lived in an appropriate style, and kept a very good table, of which he himself made no very sparing use. He was at this time troubled with the

gravel. Some political measures unexpectedly took place, which caused him the loss of his whole fortune, and obliged him to take refuge in England, where he passed nearly a year in a state bordering upon extreme poverty, which obliged him to submit to numberless privations; but his gravel disappeared. By degrees he succeeded in re-establishing his affairs; he resumed his old habits, and the gravel very shortly began to return. A second reverse occasioned him once more the loss of all he had acquired. He went to France almost without the means of subsistence, when his diet being in proportion to his exhausted resources, the gravel again a second time vanished. Again his industry restored him to comfortable circumstances; again he indulged in the pleasures of the table, and had to pay the tax of his old complaint."

In the cases of *white sand or gravel*, an acid is the best medicine, and all the acids seem to answer the purpose, though the muriatic, nitric, and citric acids, have been in the greatest repute. The citric acid, or lemon-juice, is preferable for children, as being the pleasantest, and that which may be persevered in for the longest time: it may be mixed with water in any proportion that is agreeable. The muriatic acid may be given in doses of from five to twenty drops, twice or thrice a day, in four table-spoonfuls of water; and the nitric acid in doses of from five to twelve drops, in the same proportion of fluid.

In general, the diet should be nutritious, easy of digestion, and moderate in quantity, and be as largely as possible intermixed with acids, salads, fruits, and especially oranges and lemons. Ardent spirits and malt liquors must be abstained from; and if the habit of the patient be such as absolutely to require that he should continue the use of wine, Champagne, Claret, or Hock, in very moderate quantity, will be preferable to Madeira or Port. Water, saturated with carbonic acid, is the best common beverage in this kind of gravel, and,

attention being paid to diet and exercise, will sometimes be alone a sufficient remedy.

If pain attend the gravel, opium or extract of henbane should be occasionally administered, according to the urgency of that symptom. Thirty or forty drops of laudanum, or twenty of the solution of sulphate of morphia, or from five to ten grains of the extract of henbane, may be given alone, or in any draught which the patient may be taking, and repeated until the pain is relieved. Opium seems generally preferable in the *white gravel*; and henbane in the *red*. In *white gravel*, the solution of acetate of morphia is particularly indicated as an anodyne, since the acid it contains is an appropriate and efficient remedy for the complaint, and, at the same time, counteracts the injurious effects likely to result from the frequent use of opium, when taken in any of its common forms. In case of great pain and irritation about the urinary organs, an opiate injection will be proper, and often of much service; or two or three grains of opium may be made into a pill, and inserted within the rectum, as a suppository.

A burgundy pitch or galbanum plaster may be applied over the loins with advantage. If the symptoms are unusually severe, and connected with manifest injury of the bladder or kidneys, a seton or issue should be instituted in the back.

Whether the gravel be white or red, when a small stone passes from the kidneys into the bladder, there is generally a fit of pain and irritation; to relieve which, bleeding, the warm bath, or hot fomentations, together with forty or fifty drops of laudanum every three hours, will be the most proper and effectual remedies. The passing of a small stone from the kidneys to the bladder, is denoted by a fixed pain in the region of the affected kidney, with a numbness of the thigh on the same side. The pain is sometimes very acute, and accompanied with nausea and fainting, but the pulse is rarely accelerated. During the whole of the

passage from the kidneys, the urine is usually high coloured, and frequently mixed with blood.

Stones, or calculi in the bladder.

These differ greatly in their composition, form, size, and colour; but by far the most frequent is the uric acid calculus; while the mulberry calculus is productive of the greatest suffering. Their magnitude is generally in an inverse ratio to their number: the average size may be compared with that of a chestnut, walnut, or a small hen's egg. A stone was taken from the bladder of the late Sir David Ogilvie, of England, which weighed forty-four ounces, and was of an oval shape, its long axis measuring sixteen inches, and the shorter fourteen.

The symptoms of a stone in the bladder are, a sort of itching along the urethra, particularly at the extremity of the glans, from which the patient often acquires a habit of pulling the prepuce, which becomes very much elongated; frequent propensities to make water, and go to stool; great pain in voiding the urine, and difficulty in retaining it; the stream of urine being liable to stop suddenly, while flowing in a full current, although the bladder is not empty, so that the fluid is expelled by fits as it were; and the pain being greatest towards the end of, and just after, the evacuation. There is a dull pain about the neck of the bladder, together with a sense of weight, or pressure, at the lower part of the belly; and a large quantity of mucus is mixed with the urine, and sometimes the latter is tinged with blood, especially after exercise. But all these symptoms are so equivocal, and bear so great a resemblance to the effects of several other disorders, that they cannot of themselves be depended upon, and, consequently, no well-informed surgeon will venture to pronounce positively that there is a stone in the bladder, unless he can distinctly feel it with a sound; that is, a polished steel rod introduced through the urethra into the bladder.

The causes of calculi are the same as those which give rise to gravel.

Stone in the bladder is much more frequent in some countries than in others. It has been conjectured that women are less liable to the stone than men, but this is a question not yet completely settled. Infants, and children to the age of twelve, or fourteen, are particularly subject to it.

The medical treatment to be employed in cases of stone is precisely the same as that for gravel, both in regard to the remedies and diet: if the urine deposits a *red* sand, the alkalies, and other remedies just mentioned, must be taken; if *white* sand, the acids. There is this difference between gravel and stone, that, in the former, active exercise is highly advisable; whereas, during the actual presence of a stone in the bladder, the patient's exercise ought, for obvious reasons, to be less active and constant.

Dr. Morris, of Canada, has lately found that an injection of castor oil has great effect in relieving the sufferings occasioned by a stone in the bladder. Different considerations had inclined him to the opinion, that the introduction of a lubricating fluid into the bladder would, under such circumstances, be productive of ease and advantage, and, being afflicted with the stone, he soon had an opportunity of trying the experiment on his own person. "I first took care," says he, "to rid myself of the contents of my bladder; this I had no sooner accomplished than, with a large syringe, I injected, through a small leaden tube reaching to the sphincter, about two ounces of cold-drawn castor oil, and I cannot express to you my feelings occasioned by the change which took place upon the moment of its introduction, for it seemed as if a new lower-half had been given me. The absence of former painful symptoms still continuing, I went to bed, and can safely say, that I had not known, for some time previous, the pleasure of a sound and uninterrupted sleep. Latterly, I never awoke without a wish to make water, and the morning following was the first exception to it. When I did obey the call,

I took care, finding that the oil came last, to leave as much within the bladder as I could. This I had little difficulty in effecting, as it does not dispose the bladder to contract as other fluids do." After this, the bladder was constantly kept supplied with two or three ounces of castor oil, and under this treatment every symptom of irritation vanished, and during two months no one symptom re-appeared to remind him of the existence of the calculous concretion.

When all the foregoing means of relief fail, and the general health is worn out by a long succession of pain and anxiety, nothing remains but the operation of extraction. In females, stones, even of a large size, may frequently, perhaps generally, be extracted by dilating the urethra, by means of sponge tents, to a size sufficient to allow the calculus to pass, without the use of a knife at all; but in men either the latter must be resorted to, or the stone must be broken down by the introduction into the bladder of instruments that have been lately invented, and by which in most cases the use of the knife may be dispensed with.

HARE-LIP.

The hare-lip is an unnatural division in the upper lip, with which some children are born. The division is sometimes confined to the skin and muscles of the lip, but in other cases it extends to the palate bone and soft parts of the mouth. It is a deformity which parents are very anxious to get rid of, and when the fissure is confined solely to the lip, this may be effected without a great deal of pain or difficulty; but it is proper to wait till the child is a few years old, and able to give a little assistance by its own steadiness. The operation consists in removing the skin from the surfaces of the cleft, and bringing and keeping the two raw edges in contact; when the opposite sides grow together perfectly, and hardly a scar remains. Adhesive plaster will not do to keep the edges in contact, but it must be done

by two or three gold pins pushed from one side to the other, and kept firm by thread or silk twisted round them in the figure of 8. In three days they may be removed, and the cure will be complete. This is the course of things under favourable circumstances; but sometimes there are two or more clefts which require separate operations: in such cases one should be healed before the cure of the other is attempted. When the palate bone is also divided, the cure cannot be accomplished, and the voice is defective from the wrong conformation of the roof of the mouth, and swallowing is difficult, on account of the food getting up into the nose.

HERNIA, OR RUPTURE.

Rupture, called in surgical language *hernia*, signifies the displacement of one of the internal organs from its natural situation; but it is more commonly applied to that disease, which arises from the bowels getting through some of the apertures designed for the transmission of other organs. When the parts of the bowels or omentum which have protruded can be replaced by change of posture or by the hand, the *hernia* is said to be *reducible*; when they can not, it is called *irreducible hernia*; and when dangerous or painful symptoms are brought on by the bowel being constricted, in the opening through which it has passed, the *hernia* is said to be *strangulated*.

Ruptures are inconvenient and dangerous in proportion to their bulk, to the place where they occur, and to the stricture or pressure they undergo by straining at stool. Without entering upon the discussion of the more uncommon and obscure kinds of rupture, we shall mention those which are generally met with, and which, by their frequent occurrence, demand attention. 1. *Inguinal hernia*, or that which occurs in the groin. There is, at the lower part of the belly, and towards the middle line, a passage through the muscles of the belly for the transmission of certain organs, which in the male sex are lodged in the serotum, and in the fe-

male are distributed among the skin at the sides of the labia. Through these openings the bowels are sometimes protruded, either by the apertures being unusually large, or by some stress or violent exertion of the body. Some portion of the bowels is thus forced downwards into the scrotum, occasioning a greater or less swelling in that part; or the bowels may be pushed out so very little, as to form merely a small and hardly perceptible swelling in the groin. 2. *Femoral hernia* is that which appears at the upper part of the thigh, or at the opening by which the great blood-vessels of the lower extremity enter into and pass out of the abdomen. 3. *Umbilical hernia* signify those ruptures which occur at the navel. Ruptures also occur at various other parts, but much more rarely than at those above mentioned.

When a rupture comes on suddenly, in consequence of any violent exertion, the patient has the sensation as if something had given way, and the pain is considerable. But many persons are afflicted with rupture, in whom it has come on gradually, and in whom there are large swellings, giving little or no inconvenience but what arises from their bulk. But a person who is ruptured, can never be sure that things will remain long in a quiet state; because from external violence, from unusual exertion, or from causes unknown, dangerous symptoms may speedily come on. Sometimes the contents of ruptures return into the cavity of the belly, when the patient is in the horizontal posture, or they can be returned, with a little manual assistance; but in other cases, from the great quantity of intestine that is down, from adhesions having been formed between it and the neighbouring parts, its reduction is impracticable. When a rupture can be replaced, it is proper for the patient to wear a truss, which, when well made, gives the necessary support to the bowels, and prevents their being pushed out of the cavity; the wearing of this instrument is attended with no inconvenience; and even very young

children may wear it, if it be properly fitted. When a truss cannot be worn, or when the rupture can not be put up, all that remains is for the patient to take as much care as possible, that no injury or blow be inflicted on the tumour; to guard assiduously against costiveness, and to avoid violent exertions of every kind; and in children, care must be taken to prevent violent or frequent crying, straining at stool, and all such motions as are apt to increase or occasion rupture.

There are some persons in whom rupture takes place more easily than in others, and in whom it is constant. The reason seems to be, that the parietes of the abdomen, or the neighbourhood of the openings in it, are more lax and yielding in them than in others. Rupture is common in warm climates, in old people after long illness or debilitating fevers, and in the poor who have laboured hard, and been ill-fed. The circumstance which immediately occasions ruptures, is generally some violent exertion, which implies a strong action of many muscles, especially those of respiration; hence, ruptures are brought on by lifting or carrying heavy weights, jumping, running, vomiting, straining at stool, the efforts of women in child-bed; or by coughing, sneezing, crying, laughing. As the whole of the human race are continually exposed to some one or other of these exertions, and as ruptures are comparatively rare, we infer that those to whom they occur have some peculiar laxness in the structure of the parts through which the bowels protrude.

The symptoms of a rupture, when it is reducible and not strangulated, are a swelling, more or less considerable in some part of the belly; this diminishes a little on pressure, but returns when the pressure is withdrawn; it disappears almost entirely, when the patient lies down, and is increased by coughing. Patients with rupture are sometimes troubled with indigestion and costiveness, but frequently, all the functions of the alimentary canal are quite regular. When we succeed in returning

the protruded bowels into the abdomen, there is commonly heard what is called a gurgling noise.

Symptoms of strangulated rupture. When either an old rupture from some cause has become strangulated, or when some sudden exertion has at once produced rupture and strangulation, the following symptoms occur: there is a swelling at the place of the rupture, painful to the touch, and increased by coughing, sneezing, or by the upright posture. These symptoms are followed by sickness, retching, costiveness, with a frequent hard pulse, and other attendants of fever. The cause of these symptoms is the stricture made on the bowel, by the part through which it protrudes. The object of cure, is therefore to relieve the bowel from this pressure, which is to be effected either by returning the intestine into the belly, by the same aperture through which it came out, or by enlarging the aperture by an operation.

We are first to endeavour to replace the bowel by the hand, if possible; and various methods are to be put in practice, to produce the relaxation necessary for that purpose. The surgeon is to place the patient on his back, with the thighs and knees bent; and he is to make pressure on the tumour in a direction obliquely upwards and outwards, if it be an inguinal hernia, but the pressure must at first be made downwards, towards the thigh, and then upwards if the hernia be femoral. In a young and strong person, bleeding is very proper, both to induce relaxation, and to prevent inflammatory symptoms. The warm bath may be tried also to induce relaxation. With a view to diminish the bulk of the swelling, and so to render it more easily replaced, cold has been applied to the external parts, by means of ice or of ether. An injection of the infusion of tobacco produces an extreme relaxation of the whole system, and so has conduced to the replacement of protruded bowels. The strength of the infusion is a drachm of the leaves to an English pint of boiling water; this is

infused for ten minutes; one half is injected at first, and the other a little afterwards, if no proper effect is produced by the first. The tobacco injection is, however, a remedy of the greatest danger, and must never be administered, except by an experienced practitioner. These attempts to reduce the bowel, may be made for a longer or shorter period, according to the symptoms of each case. Much handling will add to the danger of inflammation which is already so great; and too long delay will allow the bowels to get into a state of mortification. When we have decided that an operation is necessary, it is to be performed by making an incision through the skin and other coverings, till we reach the sac containing the gut; we are then to ascertain the situation of the part that causes the stricture, and, guided by the finger or by an instrument called a director, we are to divide with a bistoury in the proper direction. It is unnecessary to trouble the general reader with more than the plan and outline of the operation, and what is intended by it. If the bowels are in a fit state to be replaced, and the operation is successful, the first favourable symptoms will be a cessation of the vomiting, and a free discharge by stool; and after the wound is dressed, we are to watch lest inflammation come on. Rest and quiet are to be enjoined, and occasional mild laxatives are to be given. After the cure is completed, the patient should wear a truss, probably for life; and ever after be cautious not to use any violent exertion.

Ruptures in infants. Ruptures in different parts, especially at the navel, are not unfrequent occurrences in infancy; fortunately, they are not attended with so much danger as similar disorders in grown people. When the disease is confined to the navel, a broad piece of flannel, in the form of a roller, together with pieces of adhesive plaster applied over the part with a ball of cotton, forming what has been termed by surgeons a *graduated compress*, by affording a safe and firm support, prove

so useful, that as the infant acquires strength, the rupture commonly disappears. The other varieties of rupture are often cured by the natural increase of size and strength in the body, and require chiefly attention to the due regulation of the bowels, and the daily use of the cold bath. No truss ought to be employed for at least the first two years of life.

HYDROCELE.

Hydrocele consists in a collection of water in the scrotum, or in the membranes investing the testicles and its vessels. Hydrocele is to be carefully distinguished from the watery swelling which takes place in the cellular substance of the scrotum in cases of general dropsy, which constitutes a very different disease, and is to be treated as part of a more general affection, by the remedies appropriate to that particular disease. Water may be collected in the cellular membrane surrounding the spermatic vessels; and while this collection is not very large, the scrotal bag has little or no appearance of disease. If the water accumulates, there is a knotted appearance along the course of the spermatic cord; and the size may become so large and inconvenient as to require the water to be evacuated by an incision. Sometimes, instead of several cells being thus filled with water, it collects in a large one, and requires similar treatment. The more common form of the disease is, when there is an accumulation of water in the common coat of the testicle.

The gradual collection of this fluid distinguishes the disease from rupture, which forms suddenly; the swelling in rupture disappears on pressure and change of posture, that of hydrocele does not; the swelling begins at the upper part in rupture, but from the lower part in hydrocele; besides, if a candle be held behind the swelling, there is a degree of transparency visible in the latter affection, but not in the former.

The cure of hydrocele is either temporary or permanent. The water may

be easily evacuated by a puncture, but it will readily accumulate again, and means must be taken to prevent this. The means most effectual, were it always in our power to execute them, is to excite such a degree of inflammation in the parts, as will cause the outer covering of the testicle to grow to the inner surface of the bag; thus to obliterate the cavity altogether, and leave no space for the accumulation of fluid. Such inflammation is excited by introducing through a syringe, port wine diluted with water to a proper strength, generally two parts of wine to one part of water: but if the liquor be too strong, it may excite so much inflammation as to give rise to general fever, which will require to be treated by blood-letting, both general and local, with purgatives and cooling lotions.

JOINTS, AFFECTIONS OF THE

Inflammation of the joints. This complaint ordinarily originates in consequence of a contusion, sprain, wound, or some other kind of injury, done to the part affected.

The inflamed joint shows the common symptoms of inflammation, viz. preternatural redness, increased heat, throbbing pain, and swelling, while the constitution is also disturbed by the usual symptoms of inflammatory fever. It is highly deserving notice, however, that in these cases, such symptoms are often exceedingly severe, and the pulse is more frequent, and less full and strong, than when parts more disposed to return to a state of health, are affected. The inflammation first attacks some part of the capsular ligaments, and very quickly diffuses itself universally over their whole extent, as usually happens in all inflammations of smooth membranes.

The complaint is accompanied with an increased secretion of the synovia of the joint, which becomes of a more aqueous, and of a less albuminous quality, than it is in the healthy state.

The capsular ligaments, like other parts, are frequently thickened by inflammation, and, sometimes, coagulat-

ing lymph being effused on their internal surfaces, organized cartilaginous or osseous bodies are in consequence formed in their cavities.

When the inflammation attains a higher pitch, an abscess may occur in the capsular ligament. This part at length ulcerates, and the pus makes its way beneath the skin, and is sooner or later discharged through the ulcerated openings.

An abscess rarely takes place in an important articulation, in consequence of acute inflammation, without the system being, also, so deranged, that life itself is immediately endangered. In the violent stage of the inflammation, just before the abscess forms, very severe symptoms of inflammatory fever afflict the patient, and occasionally, delirium and coma taking place, death itself ensues.

When an abscess has been formed in a large joint, hectic symptoms almost immediately begin to show themselves, and the more violent symptoms of the common inflammatory fever suddenly subside.

Local consequences, even worse than those above described, may follow inflammation of a joint. As the layer of the capsular ligament, reflected over the cartilages of the articulation, is often inflamed, the cartilages themselves are very apt to have the inflammation communicated to them. Parts partaking of a cartilaginous structure, being very incapable of bearing the irritation of disease, often ulcerate, or, in other words, are absorbed, so as to leave a portion, or the whole, of the articular surface of the bones, completely denuded of its natural covering. At length, the heads of the bones themselves inflame, and become carious; or the consequence may be an anchylosis.

When a joint is inflamed, how mild soever the affection may be, we ought never to forget, that, when there is a tendency to scrofula in the system, the original case of simple inflammation is very apt to be the exciting cause of the white swelling, one of the most

severe and intractable diseases, which increase the catalogue of human miseries.

It will considerably shorten what we have to say concerning the treatment of inflamed joints, to observe, that the antiphlogistic plan, in the fullest sense of the expression, is to be adopted.

There are few other surgical cases, in which general, and, especially topical bleeding from the part affected, is more strongly indicated.

The violence of the inflammation, and the strength, age, and pulse of the patient, must determine, with regard to the use of the lancet; but, the topical application of leeches may be said to be invariably proper. When the leeches fall off, the bleeding is to be promoted by fomenting the part. The surgeon should daily persist in this practice, until the acute stage of the inflammation has subsided. But, in conjunction with this treatment, we are to keep the joint continually surrounded with linen rags, wet with cold lead-water.

In a few instances, however, the patient seems to derive more ease and benefit from the employment of fomentations and emollient poultices, and the feelings of the afflicted should always be consulted; for, if the pain be materially alleviated by this or that application, its employment will hardly ever be wrong.

Nothing more need be said, concerning the rest of the treatment, proper during the vehemence of the inflammation, as it is not materially different from that proper in other inflammatory cases.

As soon as the acute stage of the affection has subsided, the grand object is to remove the effects which have been left. These are a thickened state of the capsular ligament and parts surrounding the articulations; a stiffness of the joint, and pain when it is moved; a collection of fluid in the capsule, &c. This state of the complaint, when neglected, and when there is a tendency to scrofula, may prove exceedingly obstinate; and even terminate in an irremediable distemper of the joint.

When this second stage of the disorder seems tardy in going off, the application of a blister is proper, and it should be kept open for a few days, by means of the savin cerate.

In other cases, in which the inflammation has been less violent and extensive, and the effects which it has left are slight, lotions, composed of vinegar and sal ammoniac, suffice for the removal of the chronic complaints, continuing after the abatement of the acute stage of the disorder.

Dropsy of the joints. This signifies a collection of serous fluid in the capsular ligaments of a joint. The complaint is attended with more or less swelling, and a fluctuation as of a fluid contained within a bag; but there is, in general, but little pain. The affection is sometimes situated in the bursæ mucosæ. The knee is more subject, than other joints, to dropsical disease. The complaint is frequently preceded by severe rheumatic affections or inflammation, or it may succeed to a local injury of the part. When the fluid is not so copious as to produce very great distension of the capsule, a fluctuation is easily distinguishable. Also, if the limb be extended, so as to relax the ligament of the patella, pressing upon the collection of fluid causes a rising of that bone, and a fullness on each side of it. The disease, though unattended with much pain, produces a degree of rigidity in the joint. Dropsy of a joint sometimes follows fevers.

The cure of the above described dropsical affection of the joints, depends upon the absorption of the effused fluid. Such absorption is sometimes altogether spontaneous, and the event may always be excited and promoted by mere friction, by rubbing the joint with camphorated mercurial ointment, by repeatedly applying leeches, and particularly, by the employment of a perpetual blister.

The operation of a blister may always be very materially assisted by a bandage, applied with moderate tightness. Among other effectual means of cure, we may enumerate frictions with flannel impregnated with the fumes of

vinegar, electricity, and the exhibition of mercurial medicines to open the bowels. When dropsy of a joint occurs subsequent to typhoid, and other fevers, the complaint can hardly be expected to get well before the patient has regained some degree of strength.

Circumstances do not often justify making an opening into the joint; but, excessive distention, in some neglected cases, might certainly be an urgent reason for performing such an operation. Also, if the complaint should resist all other plans of treatment, and the irritation of the tumour greatly impair a weak constitution, the practice would be justifiable.

DISLOCATION. When the articular surfaces of bones are forced out of their proper place, the accident is termed a *dislocation* or *luxation*. The loose joints which admit of motion in every direction, as the shoulder-joint, and the hip-joint, are those which are most frequently dislocated; while those which move like a hinge, as the knee-joint and elbow, are more rarely dislocated, and require an unusual degree of violence to accomplish it. Dislocation may be complete, as when the articulating surfaces are quite separated; or incomplete, when a part still remains in contact with its neighbouring bone. The dislocation of the round-headed bones may take place in every direction, that is, they may be pushed backward, forward, upward, downward, or in any part of the circumference. The other kinds of joints are capable of dislocation only backward, forward, and to either side. When a dislocated bone has been restored to its place, it is said to be *reduced*; and the ease with which this is accomplished depends much on the short period which has elapsed since the accident, as well as upon the nature of the dislocation, and the skillfulness of the surgeon. When bones have been out of their place for a few days, their reduction becomes very difficult; and when the time is very long, it is impossible. The soft parts and the bone accommodate themselves, after a while, to the

altered position. In several cases, the opening in the capsular ligament becomes closed, and will not allow the bone to return into its place; or adhesions may be formed between the bone and the place to which it has come. For this reason, when a person has had the misfortune to dislocate a joint, he should immediately apply for assistance to have it reduced, if possible, before swelling and inflammation of the parts, or any other untoward consequence, render reduction difficult or impossible. In cases of very great external violence, it sometimes happens that not only is the joint luxated, but an external wound is inflicted, by which the danger and severity of the symptoms are exceedingly increased; and, in some cases, so great is the danger of a wounded joint, and of the air getting admission into its cavity, that immediate amputation of the limb is advisable.

A bone is known to be dislocated by there being a loss of the usual motion in the joint, by the limb being altered in its length, or distorted; by there being great pain in the surrounding parts, and this pain increased on motion or pressure. The head of the dislocated bone is sometimes distinctly felt in a wrong place, and a vacuity or depression is perceived where there ought to be a fullness.

The causes of dislocation are either internal or external. The internal causes are, diseases of the joint or its appendages, relaxation of the ligaments, palsy of the muscles, any morbid affection that destroys the cartilages, the ligaments, or articular cavities. A white swelling sometimes partially dislocates the knee; and scrofulous disease of the hip-joint is often the cause of dislocation there. External causes of dislocation are various degrees of violence applied to the joint or limb, such as blows, falls, violent wrenches or twists, and the like. Dislocations from the last set of causes are more easily reduced than others.

The treatment of dislocations, though a branch of surgery requiring great

skill and dexterity, as well as anatomical science, has very frequently been assumed by those who had no pretensions to either, and who were possessed only of brute strength, or of a certain knack empirically acquired, of which they know not the mechanism nor the reason. Many people regard bone-setting, as it is called, as no matter of science, as a thing which the most ignorant farrier may, with the utmost ease, become soon and perfectly master of; nay, that he may receive it from his father and family, as a kind of heritage. In the former practice of surgery, too much was expected from mere force, either of the human arm alone, or assisted by machinery, and too little was allowed to the powers of nature, which might be brought into action by a proper knowledge of the muscles which favour or oppose the reduction. The muscles which move the joints in a sound state, do not lose their power when the joint is luxated, but, on the contrary, are often spasmodically affected, and draw the bone out of the direction most favourable for its reduction, and powerfully oppose its return. It becomes, therefore, a matter of accurate consideration, what muscles are likely to oppose the reduction of a joint; and these muscles will vary according to the direction in which the bone is luxated. Although a joint may have been luxated by means of considerable violence, it can by no means follow that the same degree of violence is necessary for its reduction. When a joint has been luxated, at least one of the bones is kept in that unnatural situation by the action of some of the muscular parts in connexion with it. We can not know whether the ligaments of the joints are broken or not, and this circumstance need not influence our methods of reduction. All the force used in reducing a luxated bone, be it more or less, be it by hands, towels, ligatures, or machines, ought always to be applied to the outer extremity of the luxated bone, and as much as possible to that only. In the reduction of the

shoulder and hip-joint, the whole body should be kept as steady as possible. In order to make use of an extending force with all possible advantage, and to excite thereby the least pain and inconvenience, it is necessary that all parts serving to the motion of the dislocated joint, or in any degree connected with it, be put into such a state as to give the smallest possible degree of resistance. In the reduction of such joints as consist of a round head, moving in a socket, no attempt ought to be made for replacing the head, until it has by extension been brought forth from the place in which it has lodged itself, and nearly to a level with the edge of the socket. All that the surgeon has to do, is to bring it to such level; the muscles attached to the bone will do the rest for him, and that whether he will or not. Whatever kind or degree of force may be found necessary for the reduction of a luxated joint, that force must be employed gradually; the lesser degree must always be first tried, and it must be increased gradually. They who have not made the experiment, will not believe to how great a degree a gradually increased extension may be carried without any injury to the parts acted upon, whereas great force exerted hastily, is productive of very terrible and lasting mischief. Extension may either be made by means of assistants, who are to take hold of napkins or sheets, put round the part at which it is judged proper to make the extension, or else a multiplied pulley may be used. The first is the preferable method. The extension should always be first made in the same direction into which the dislocated bone is thrown; but in proportion as the muscles yield, the bone is to be gradually brought back into its natural position. The extension will prove quite unavailing, unless the bone, with which the dislocated head is naturally articulated, be kept motionless by counter-extension, or a force at least equal to the other, but made in a contrary direction. When the attempts at reduction fail, the want of success is

sometimes owing to the extension not being powerful enough, and to the great muscular strength of the patient, whose muscles counteract all the efforts to replace the bone. In the latter case, the warm bath, bleeding, and other means of relaxation are to be employed; and some have even recommended intoxication; but though a drunken man is sometimes quite incapable of resisting any force applied to him, the propriety of this is very questionable, as the same effect may be produced by more scientific and less immoral means. Long continued, unremitting, gradual extension, will at last weary out the most powerful muscles; and this practice is the most to be recommended. A dislocation is known to be reduced by the limb recovering its natural length, shape, and direction, and by the patient being able to perform certain motions, which he could not do when the bone was out of its place. There is a great and sudden diminution of pain; and sometimes the bone is heard to give a loud crack as it goes suddenly into its natural position.

After the reduction of a dislocated bone is effected, care must be taken to prevent a recurrence of the accident, by retaining the limb steady by appropriate bandages, which should be put as far as possible from the centre of motion. To the ankle and the wrist, splints may sometimes be necessary. After luxations of the shoulder-joint, the arm is to be kept in a sling. If there is any appearance of inflammation or swelling taking place after the accident, or from the force applied in reduction, a cold lotion is to be kept to the place, and even leeches may be necessary, with a saline purgative. The patient must for some time be cautious in using the limb.

Compound luxations are those which are attended with a wound communicating with the cavity of the injured joint. These injuries are often attended with very great danger, and much skill and judgment are required to decide upon the treatment immediately after the accident. So much injury

may be done, that any attempt to cure it would soon be frustrated by violent fever, gangrene, and death; all of which may be prevented by the amputation of the limb. At the same time, it is to be remarked, that by proper care and judicious treatment, many apparently untoward cases may do well. The reduction of compound dislocations must be effected as gently and as quickly as possible. The wound is to be cleared from dirt or any extraneous matter, and its lips are to be brought and retained together by strips of adhesive plaster. The limb is to be bound with the proper splints and bandages, and to be kept cool by cooling lotions; and if there is much constitutional excitement, extensive bleeding from the arm is often demanded; and internal means are to be used, at the same time, for the diminution and cure of feverish symptoms, should any such present themselves. Saline draughts and antimonial medicines must be resorted to, and purgatives also, provided they do not subject the patient to too much motion of the injured part. If the febrile symptoms abate, and the local inflammation does not run to any great extent, we may hope that the injury will pass over without bad consequences; but the reverse will occasionally happen; thus violent inflammation may attack the joint, and be followed by suppuration, and all the dangers and debilitating symptoms of hectic fever. While these continue, it would be dangerous to attempt amputation; but we must wait till these symptoms abate, and then give the patient the only chance of saving his life.

Having made these general observations on dislocations, and shown the principles on which they should be treated, it can hardly be considered necessary or proper, in a popular work, to enter on the minute details of the symptoms and cure of every particular dislocation. For these we must refer to books of surgery.

Dislocations or fractures of the limbs of infants sometimes happen in delivery. They ought never to be con-

cealed or neglected, but the proper measures should be immediately taken for their replacement and cure.

ANCHYLOSIS. Anchylosis, or stiff joint, is most frequently owing to the smooth gristly covering which tips the ends of bones destined to move on each other, being eroded by disease, and the bones in consequence growing together. This may arise from inflammation, and other diseased actions, by which the cartilages at the ends of contiguous bones are destroyed; while the bony parts being brought in contact grow together. A stiff joint may also be produced by the thickening and adhesion of tendinous parts, but this is not the true anchylosis. When this affection is complete, it is hardly possible to cure it; but it is to be prevented by removing inflammation and other exciting causes; by a prompt and judicious resort to the remedies demanded by each case of disease implicating a joint. In some cases, however, anchylosis is to be considered as a favourable termination of what would otherwise have produced a wasting discharge, or have required amputation, as in white swellings of the knee-joint. Stiff joints very frequently occur in old rheumatic and gouty cases. When the stiffness is not complete, attempts may be made by frictions with oily and stimulant matters, as camphorated oil, oil of turpentine, a strong brine, or neat-foot's oil. Water, either warm or cold, poured from a height upon the affected joint, is sometimes successful. When anchylosis cannot be prevented, it is important to place the limb in such a situation as to be of most use to the patient, or at least to give him the smallest inconvenience after the joint is destroyed. Hence, the lower limbs should be kept extended, and the upper, especially the elbow, flexed. The joint of the wrist, when affected, should be so placed by splints as to leave the hand extended.

WHITE SWELLING. This is a very formidable disease, to which joints, but more especially the knee-joint, are liable. It is called white swelling, from the circumstance of the colour of the

skin not being altered, notwithstanding the increased size of the joint. It occurs most frequently in scrofulous constitutions. At the commencement of the disease, the swelling is inconsiderable, and there is merely a fullness on each side of the knee-pan, where in the natural state of the parts there exists a depression, and which tumefaction gradually spreads over the joint. Pain soon begins, and increases till the patient is unable to bear the weight of the body on the diseased joint; he, therefore, gets into the habit of touching the ground only with his toes, keeping the knee-joint bent, so that it at last becomes incapable of being straightened. The joint, in time, acquires a great size, but the skin retains its natural colour, distinguished only by its shining appearance, and by the large veins running through it. As the disease advances, collections of matter form round the joint, and burst. Sometimes the ulcers which result heal, but more commonly other collections succeed. The constitutional disturbance is now great. The health is impaired, the appetite and sleep are bad, the pulse is small and frequent, there is obstinate diarrhoea, and profuse night sweats. Death, in a short time occurs, unless some means be taken to free the constitution from all this disease and irritation.

If the swelling should be seen by the surgeon in its early stage, when there is a degree of inflammation present, it is to be treated by topical bleeding, and cooling lotions, accompanied by the antiphlogistic regimen, and saline purgatives. Cupping is a very good way of abstracting blood in this stage of the disease; but when the inflammation and tension are very great, probably thirty or forty leeches are preferable. These measures are to be considered as applicable only to the inflammatory condition of the joint; but when that state is not present, such practice has no beneficial tendency, and no influence over the principal disease. A method of discussing white swellings has been in many cases very successfully prac-

tised, viz: friction with the hand, using no other medium than dry flour. This is to be done with considerable force, and for one or two hours at a time. Another essential measure, is to keep up a discharge from the surface of the joint by blisters, or by issues. It is advisable to begin with a very large blister, completely enveloping the whole circumference of the joint; and when the blister heals, the part is to be strongly rubbed with some stimulating liniment, three or four times a day. If we prefer the employment of issues, one about the size of half-a-crown is to be made with caustic, on each side of the joint, and kept running by the application of stimulating ointments. Pressure also by adhesive plaster, and by oiled silk, has been recommended. During all our local treatment, much attention is to be directed to the constitutional symptoms, especially to the hectic fever, which is so commonly present. When the disorder of the constitution is so great as to threaten life, or to produce long and tedious ill health, it becomes necessary to amputate the limb; and the good effect of this operation is in many cases very wonderful. The irritation from the diseased joint is no sooner removed, than the constitution rallies; and the patient, who but lately seemed within a few days of his death, recovers his health completely, and has every prospect of a long life.

Loose cartilages in the joints.

Sometimes one or two pieces of cartilage, or of bone covered by cartilage, are formed in the cavity of the knee-joint. They are generally flat and oblong, and have their edges rounded. They are commonly about the size of a horse-bean, often much smaller, and sometimes considerably larger; when very large, they do not give so much trouble to the patient as the smaller kind. From the irritation of these bodies, the fluid which lubricates the joint is secreted in greater quantity, the capsular ligament is distended, a degree of stiffness of the joint takes place, with more or less of external in-

flammation. Sometimes the symptoms are so mild as not to need an operation; but often, the only means of relief is to cut down upon the loose cartilaginous bodies and remove them. Sometimes this operation, when cautiously performed, succeeds; but in other cases, severe inflammation and lameness ensue. As the danger of inflammation to the joint is very great, some have proposed to try a laced knee-cap, or a roller and compress, when the loose cartilage is so situated as not to occasion pain. In one case, this method was tried for ten years with complete success.

HIP-DISEASE. This affection is attended with considerable suffering; and, in many cases, it ends either in death or lameness. It most frequently attacks children under the age of fourteen; and generally, though not always, seems connected with scrofula. It comes on in a very insidious manner, beginning with a slight weakness and limping of the affected limb. These symptoms for a time attract but little attention, and are passed by, as growing pains, or rheumatic affections; and as there is often an uneasiness at the knee, it is supposed that the principal complaint is there, and remedies are applied to it accordingly. These remedies, though in themselves they do little harm, are bad, as they lead to the neglect of those measures which would be of service in the first stage of the hip-disease, but which can do little good at a more advanced period. Besides this pain in the knee, there is often a pain in the groin, and this contributes to mislead the inexperienced practitioner still further from the real state of the disease. The symptoms which characterize the disease of the hip-joint when fairly present, are, a degree of emaciation of the leg and thigh, great pain when pressure is made on the front of the joint; the patient limps in walking, and there is a remarkable lengthening of the limb. The buttocks lose their natural fullness, and appear somewhat flattened.—Though the patient complains of pain about the knee,

he can bear to have it moved about, but cannot suffer the same motion of the thigh without very great pain. The patient instinctively finds out the posture which gives him least pain, and this is by leaning the weight of the body chiefly upon the opposite limb, while the thigh of the affected side is bent a little forward. The symptoms above detailed indicate the presence of inflammation; and if this is not early checked, the next stage, or the formation of matter, comes on. Sometimes there is swelling and redness of the skin over the joint, and a degree of inflammatory fever; at other times, matter forms without any very evident inflammatory symptoms, and without showing itself by any fullness at the hip externally. The limb after some time is not longer, but shorter than the other; the toes are turned inwards, and the leg is bent; while the thigh-bone is pushed upwards and outwards, in consequence of the destruction of the cartilages and ligaments, which should keep it in its proper cavity. When the disease of the hip-joint has existed for some time, it very generally brings on hectic fever; though, in some cases, the health remains unaffected for a considerable period.

The disease of the hip-joint may be occasioned by external violence, as blows or falls; by exposure to cold or damp, or by lying on the damp ground; it occurs in scrofulous constitutions, but often appears without its being possible to assign any cause for it.

In the early part of the disease, we are to enjoin complete rest upon a mattress, all motion of the diseased joint being prevented by a splint carved to the shape of the limb of that side, and kept on by proper bandages; at the same time, leeches or cups are to be applied to the affected hip, and repeated according to circumstances; after topical depletion has in this manner been carried to a sufficient extent, cooling lotions or emollient fomentations may be resorted to; at the same time the bowels should be kept perfectly free by

the use of a combination of jalap and cream of tartar. Such treatment is more particularly proper, when the symptoms of active inflammation are present; but when these have abated, the best treatment is to form an issue with caustic, behind and below the part of the thigh-bone which is felt to project at its upper part, the state of rest being still observed. The issue should be of the size of a half-crown-piece, and will require to be kept open a very long time. Attention is to be paid to the general health; bark, and a nourishing diet are to be given as the strength requires, and the digestive organs and bowels are to be carefully regulated. Sometimes, after long and tedious confinement, the disease is removed; but at other times, either death, from wasting hectic fever, and destructive ulceration, takes place, or the joint becomes stiff and contracted, and the patient is lame for life, though the constitution, in general, may be in a healthy state.

NOLI ME TANGERE.

Noli me tangere, or *touch me not*, is a species of disease affecting the skin and cartilages of the nose; very difficult of cure, as most applications seem to make it worse. It generally begins by small ulcerations on the side of the nose, which spread, and sometimes destroy a great part of it; a similar disease has been seen on the pectoral muscle. In a few cases of long duration, without much inflammation, the internal use of arsenic has seemed to be of some slight advantage.

PHYMOSIS.

Phymosis is a disease of the penis, in which the prepuce can not be drawn back, so as to uncover the glans. A chancre is the most frequent cause; but a mere inflammation and discharge from the glans and prepuce, and also a gonorrhœa, may bring on the disease. This state is frequently productive of bad consequences, especially when there are chancres behind the

glans, for, the glans being between the orifice of the prepuce and the sores, the matter sometimes can not get a passage forward, between the glans and prepuce, and, consequently, it accumulates, so as to form a kind of abscess, which produces ulceration on the inside of the prepuce. This abscess bursts externally, and, the glans often protruding through the opening, the whole prepuce becomes thrown towards the opposite side, and the penis seems to have two terminations.

A phymosis should be prevented, if possible; therefore upon the least signs of a thickening of the prepuce, which is known by its being retracted with difficulty and pain, the patient should be kept quiet; if in bed, so much the better, as in a horizontal position, the end of the penis will not be so depending.

As when there are sores, they cannot be dressed in the common way, injections must frequently be thrown under the prepuce, or the operation for phymosis performed. Mr. Hunter advises mercurial injections; either crude mercury rubbed down with a thick solution of gum arabic; or calomel with the same, and a proportion of opium; or else a solution of one grain of corrosive sublimate in one ounce of water. Mr. Hunter also recommends the application of emollient poultices, with laudanum in them, and, before putting them on the part, to let the penis hang over the steam of hot water, with a little vinegar and spirits of wine in it.

When the inflammation has abated, he advises moving the prepuce occasionally to prevent it becoming adherent to the glans. He says, he has seen the opening of the prepuce so much contracted from the internal ulcers healing and uniting, that there was hardly any passage for the water. If the passage in the prepuce thus contracted, be in a direct line with the orifice of the urethra, a bougie must be used. If otherwise, the operation of slitting up, or removing part of the prepuce, becomes necessary.

POLYPUS.

A polypus is an excrescence growing in certain cavities of the body, most commonly in the nose, or the uterus and vagina. They are often very troublesome and painful, altering the shape, and impeding the functions of the part in which they are found. They have sometimes a broad base or attachment, at other times they arise by a narrow neck, and are often very subject to bleeding. When cut, unless it be done very completely, and even a portion of the healthy structure is removed along with them, they are apt to grow faster than before. They are often in such a situation that they can not safely be cut, or have caustic applied to them; and the polypi most likely to be safely removed, are those which, having narrow bases or necks, allow of a ligature being put upon them, by which the influx of nourishment being prevented, they drop off.

The clots of blood found in the cavities of the heart, after death, are also, improperly, called *polypi*.

SARCOCELE.

Sarcocele is a scirrhus disease of the testicle, of which the first appearance is an enlargement and hardness of the body of the testicle, without pain or inequality of surface, and occasioning little uneasiness, except by its weight. Sometimes, very soon after its appearance, it becomes unequal and knotty, with acute pains darting to the loins and back, but the skin still remains entire. Sometimes the disease produces a large foul ulcer with hard edges.

Though the disease in some cases remains quiet for a length of time, yet, in many others, it becomes suddenly worse, and even fatal. It is now pretty generally admitted, that as soon as a patient is ascertained to have a scirrhus testicle, the only safe plan is to have it removed. This, in general, relieves the patient: though, in some cases, the same disease may seize on

other parts and render the operation unavailing.

SPINE, AFFECTIONS OF THE

Curved spine. Distortion of the spine has of late years become very frequent, especially in young females, from improper clothing, and an entire neglect of their physical education. Correctly speaking, it is of two kinds: 1. Lateral distortion, arising from debility of the muscles of the back, or rickets; 2. Distortion forwards, arising from caries of the bones of the spine, or ulceration of the intervertebral substance.

The lateral distortion is usually to the right side, and is the kind of curvature now most commonly met with. The first circumstance that attracts attention in a beginning curvature of the spine is, one breast appearing larger than the other, or so unequal as to lead to a suspicion that it is growing out of its place; or the patient's friends are struck by the right shoulder appearing enlarged, and farther removed from the spine than the left. At the same time, there is generally an apparent enlargement of the left hip; so that the ordinary visible effects of the lateral distortion are, such a change in the appearance of the right shoulder, and hip on the opposite side, that mothers, in describing the state of their child, when the spine begins to be distorted, explain it as *a growing out of the right shoulder, and of the left hip*. In this condition, the patient, when in certain positions, appears to have one leg shorter than the other; and, in walking, there is a constrained position of the head and neck, an inclination to one side, and also an inequality in the step.

If, when these appearances present themselves, the spine be examined, it will be found nearly in the form of an italic *f*, and perhaps with a slight bend outwards; and the whole of the right side will be of a rounded or barrel-like form, while the left is diminished and contracted, the ribs being closer together than is natural.

In the distortion forwards, the spine

is bent backwards, that is, from within outwards, (not laterally,) so as to form an angle posteriorly. In most cases of this kind of disease in the spine, the lower limbs are sooner or later affected with some loss of the power of voluntary motion, and ultimately with complete paralysis.

The immediate cause of the lateral curvature is debility, however induced, and affecting more especially the muscles and ligaments of the back. This debility may be induced by the want of sufficient general exercise in the open air, and especially of that which acts more immediately on the muscles of the back,—by sitting long at work, or in practising on a musical instrument without artificial support,—by a habit of lounging on one leg,—by indulging much in sleep on a soft bed with a high pillow,—by the fashionable but pernicious attempts that are made to correct the figure, or to model it into a certain form, by corsets and other braces.

The true cause of the distortion forwards, is a morbid state of the spine, or of some of the soft parts connected with it. The majority of those who labour under this kind of distortion are young children, and particularly those of a scrofulous habit; while the lateral curvature occurs most commonly in young females of from fifteen to one-and-twenty years of age.

The lateral curvature, arising from weakness, is always curable, if attended to in time. The indications of treatment are, to give due strength to the back, and whole constitution, by a proper and continued use of exercise and rest, nutritious food, and strengthening medicine. Gymnastic exercises are found to be of the highest value in this complaint. The exercise must be of that kind which will restore tone to a debilitated frame; and, therefore, it must be resorted to daily, the modes and degrees of it being varied and gradually increased, always stopping short of any particular fatigue. Friction and shampooing are species of exercise, and

well adapted to this disease, since they have the power of giving tone to the back and general system, without occasioning fatigue to the patient. Therefore, in addition to the gymnastic exercises, gentle friction over the chest, spine, and limbs, should be practised once or twice a day.

Proper rest is of much consequence, because the patient being weak and easily fatigued, if a state of comfortable rest were not observed, at those times when the necessary exercise is not resorted to, the weakest part would be likely to suffer from the effects of exhaustion and languor, and the spine, in consequence, to become more distorted. Occasional ease and rest should, consequently, be given to the muscles of the spine by the patient's lying down, either on an inclined plane or on a couch, and this she should do whenever she feels fatigued, or in want of such rest. It has been a very common practice of late years, to confine young ladies to the inclined plane, or to the couch, for months together, often without their being allowed to rise during any part of the day, and this wearisome rest alone has been considered sufficient to cure the distortion; but the practice is extremely irrational and injurious, and should never be followed in lateral curvature. It invariably injures the general health, and by augmenting the debility of the muscles of the back and whole constitution, increases the curvature, and sometimes induces additional complaints of a serious nature. Sir Astley Cooper relates the case of a lady who submitted to this vile practice for many months, and in the end rose without any favourable alteration in the state of the spine, but with a disease in the bladder, which afterwards spread to the womb, and proved fatal. Mr. Abernethy also objects to a state of constant recumbency, and to lying down in any constrained attitude. He says, "I would by no means deprive the patient from taking that degree of active exercise which is conducive to health." Patients afflicted

with the present complaint should have rest, but it should be only occasional rest, taken at any time in the day that they find a need of it, and not continued so long as to interfere with the necessary exercises, or to injure the general health. The best thing for the patient to repose upon is a moderately hard hair mattress, which may be placed on an inclined plane, if preferred.

The food should be of a mild nutritive quality, consisting chiefly of broiled mutton, or lamb chops, tender roast beef, fowl, venison, eggs, biscuit, tea, cocoa, or thin chocolate, the most digestible vegetables, but neither spirits, wine, nor malt liquor. Salubrious country air is highly advisable.

Sometimes the administering of steel, or vegetable bitters, will assist the foregoing means. The bowels must be carefully regulated by the occasional use of a gentle laxative. Whenever there is an appearance of scrofula or rickets in the constitution, tonics, especially steel tonics, will be clearly indicated; and sometimes a tepid bath, of about ninety degrees, may be taken twice a week with great advantage.

Caries of the spine. This is a very common complaint in early youth. It arises sometimes from scrofula, or rickets, sometimes from blows or other accidents, and frequently from sedentary employments, or being too much confined to one posture, as frequently happens to children whose education is forced on with too much rapidity, and they are debarred from partaking of that amount of active exercise in the open air, which the health and well-being of the system so imperiously demand. It is also a consequence of too rapid growth of the trunk of the body.

The patient at first has listlessness, languor, and want of appetite; no complaint is made of any particular part; but, in a short time, the legs begin to fail. On standing, the knees involuntarily bend forward, and in walking, the legs cross each other. There are now cramps or pains in the thighs and legs, and afterwards the power of feeling and motion is lost. These symp-

toms, at first, are supposed to arise from debility; but when more particular examination is made, the spine is found to be in some degree distorted. The curvature is most commonly from within outwards, but sometimes on one side. In the latter case, however, there is generally a double curvature: for, if the first deviation is unnoticed, the patient, to relieve himself from an uneasy position, rests chiefly on the opposite side, and this posture produces the second curvature. The complaint originates from a disease of the cartilages and ligaments, communicated to the bones; it appears to be the languid inflammation of scrofulous habits, and to terminate in caries. The starting of the vertebræ from their proper line seems to be owing to their unequal erosion, and, of course, to the want of a uniform support.

While the state of the general health is attended to by general remedies, not only with a view to the debility, but to the scrofulous habit, the particular care of the surgeon must be directed to the curvature; and the best means of relieving it is the plan suggested by Mr. Pott, in procuring a considerable local discharge on each side, as near the curvature as possible, but beyond the spinal processes of the protruded bone. Tenderness in this case is cruelty; and the issue made either with the knife or the caustic, should be large enough to contain a horse-bean. If the curvature be considerable, the size of the issue should be increased. The discharge should be continued till the complaint is in a great measure relieved, and the degree of amendment may be judged of by that of the general health. During the continuance of the discharge, the complexion becomes clearer, the appetite is improved, the general strength is increased; sensation and motion are gradually restored. It has been supposed that the curvature may be reduced by this measure; we dare not deny that it will be lessened, but we have never found it so in any considerable degree. The chief effect is to relieve the inflammation of the bones and cartilages,

The curvature may be prevented from increasing during the action of the drains, and possibly at last diminished by the use of machines, constructed by artists on proper principles. After the inflammation is checked, sea-bathing may be ordered; during which the issues are to be covered with leather, secured by a margin of sticking plaster.

Divided spine. A swelling occasionally occurs on the spine of newborn children, at the lower part of the loins, at first of a bluish colour, but at length becoming paler, and then transparent. It is generally attended with a weakness or palsy of the lower extremities. Some have opened the tumour, but with very bad success, as the infants have died immediately. Whether the tumour be opened or not, it is a very fatal disease, few children affected with it living above three years. The only method that appears to have been at all serviceable, is pressure gradually and permanently employed; or evacuating the fluid by small punctures, and afterwards inducing such a degree of inflammation as to obliterate the cavity.

SPRAIN.

A sprain is an injury done to the neighbourhood of a joint, generally the wrists, knees, or ankles, and usually occasioned by a slip or some sudden and violent exertion. Sprains are commonly productive of a painful and inflammatory swelling. There is generally an effusion of serous fluid, from the rupture of exhalant vessels; but sometimes the swelling is discoloured, from blood being effused. In sprains, we are to endeavour to prevent the parts from swelling much, and to check the inflammatory tendency. Both of these ends may be in a great degree obtained, by keeping the joint at perfect rest, and by the early application of cold and astringent lotions, such as vinegar and water, spirits and water, solution of muriate of ammonia, or of sugar of lead, cold water, &c. We are also to apply leeches to the part; and to give cooling laxatives. If the

injury has been very severe, and has induced general fever, we may take blood from the arm, and employ active purgatives; continuing the cold applications. When the inflammatory symptoms of sprain have gone off, the part is to be rubbed with some liniment, as camphorated oil or volatile liniment; and it is in many cases useful to pour cold water in a stream from a height on the joint which remains stiff.

ULCERS.

A chasm or vacancy formed on the surface of a part, whether external or internal, by the absorbent vessels removing a part of the solids, is termed an ulcer. Ulceration takes place more readily in the cellular and fatty substance, than in muscles, tendons, blood-vessels, and nerves. There are many varieties of ulcers, requiring a corresponding variety of treatment.

Simple purulent ulcer. Some ulcers are covered with matter of a white colour, of a thick consistence, and which readily separates from the surface of the sore. There is a number of little eminences covering the bottom of the ulcer, called granulations, which are small, florid, and pointed at the top. As soon as they have risen to the level of the surrounding skin, those next the old skin become smooth, and are covered with a thin film, which afterwards becomes opaque, and forms skin. The principal thing to be done in the treatment of this kind of ulcer, is to keep the surface clean, by putting on a little dry lint, and a pledget over it, covered with very simple ointment. In some patients, ointment irritates and inflames the neighbouring skin. Bandages sometimes irritate the sore, and disturb the healing process; but when they do not, they are useful in giving a moderate support to the parts, and in defending those that are newly formed.

Ulcers in weakened parts. Other ulcers are in parts which are too weak to carry on the actions necessary to their recovery. In them, the granulations are larger, more round, and less compact than those formed on ulcers

in healthy parts. When they have come up to the level of the healthy parts, they do not readily form skin, but rising still higher, lose altogether the power of forming it. When the parts are still weaker, the granulations sometimes fill up the hollow of the ulcer, and then are suddenly absorbed, leaving the sore as deep as ever. Ulcers are very much under the influence of whatever affects the constitution; and change of weather, emotions of the mind, and some other agents, quickly occasion a change in their condition. Such ulcers as we have been describing, require general as well as local treatment; bark, nutritious diet, and tonics are to be given; and the granulations are to be kept from rising too much, by the prudent application of blue vitriol, lunar caustic, and the like, weakened sufficiently by proper admixture of ointment to act as stimulants, and not as caustics. This will give a proper and healthy action to the granulating surface; whereas the destroying of the rising parts by escharotics seems rather to encourage the growth. Bandages and proper support to the parts, are highly useful. These ulcers, in weak parts, do not seem to be the better of poultices, or other relaxing applications; powders rarely do good, and perhaps the best dressing is the citrine ointment, more or less diluted.

Irritable ulcers. There are certain ulcers, which may be called *irritable ulcers*. The margin of the surrounding skin is jagged, and terminating in an edge which is sharp and undermined. There is no distinct appearance of granulations, but a whitish spongy substance, covered with a thin ichorous discharge. Every thing that touches the surface gives pain, and commonly makes the ulcer bleed. The pain sometimes comes on in paroxysms, and causes convulsive motions of the limb. Such ulcers seldom do well without a frequent change of treatment. Fomentations with poppy heads, chamomile flowers, or hemlock leaves, are sometimes of use in irritable ulcers. When poultices are prescribed, they should

never be allowed to rest or bear weight on the sore limb. Powdered applications are generally too stimulating for irritable ulcers, and bandages also prove hurtful. Frequent washing with cold water, or pouring upon them a stream of cold water, will often be found beneficial in this variety of ulcers.

Indolent ulcers are those which have the edges of the surrounding skin thick, prominent, smooth, and rounded. The surface of the granulations is smooth and glossy; the matter is thin and watery, and the bottom of the ulcer is nearly level. A great proportion of the ulcers in hospitals are of the most indolent kind. Indolent ulcers form granulations, but frequently they are all of a sudden absorbed, and in four-and-twenty hours, the sore becomes as much increased in size as it had been diminished for many weeks. The principal applications required for indolent ulcers, are those of a stimulating nature, as the basilicon ointment, and occasionally sprinkling with red precipitate. Pressure is to be made by a roller, and by slips of adhesive plaster.

Scrofulous, syphilitic, and cancerous ulcers, are to be treated according to the methods laid down under these various diseases.

URETHRA, STRICTURES OF THE.

Strictures in the urethra are of three kinds. 1. That which arises from an alteration in the structure of the lining membrane of the passage. 2. That arising partly from altered structure, partly from spasm. 3. That arising from spasm. In all these cases, the stream of urine becomes small, in proportion to the obstruction. As the disease advances, the urine is voided more frequently, with considerable effort, with pain, and a straining sensation remains after the bladder is emptied. Cold is very apt to increase the symptoms which occur when a part is strictured, and to obstruct the flow of urine altogether for a time. If the stricture be not relieved, a swelling may take place from the lodging of the urine behind it; and this, by its pressure and

acrimony, may give rise to inflammation and ulceration, and the formation of fistulous openings in the perineum. Strictures are, in nearly every instance, the result of chronic inflammation of the lining membrane of the urethra, from whatever cause produced. They are most commonly the result of neglected or mismanaged gonorrhœa.

Various methods have been proposed for the cure of strictures. The one most proper to begin with is, to attempt to dilate the passage by the insertion of bougies, or cylindrical waxed rolls of linen, beginning with one of a small size, and gradually coming to use one of a larger size. These bougies either dilate the stricture, or make it ulcerate. Their use must be persevered in for a considerable time. But it may happen that the urethra is contracted at different parts of the passage, in which case the cure is, of course, more difficult and uncertain. Another method of destroying strictures has been, to introduce a small portion of some kind of caustic, in order to act as an escharotic. Different caustics have been proposed, but none of them should be employed, except under the superintendence of a skilful surgeon. In the pain of passing water which accompanies stricture, as well as some other affections of the urinary organs, the tincture of muriate of iron, given in doses of ten drops every ten minutes, till some sensible effect is produced, has seemed to act beneficially.

A stone striking in the urethra, is attended with very painful symptoms; inflammation, swelling, and a suppression of urine, more or less complete. If the stone does not pass, or if it is not extracted, there is ulceration of the urethra, the urine escapes into the cellular substance, and great swelling or gangrene of the parts may be the consequence. The removal of a stone from the urethra is to be attempted by relaxing the parts, and the whole body, by the use of the warm bath, or by general or topical bleeding, and by opium applied externally, or taken by the mouth. In this way, a stone may

be sometimes made to pass, when aided by skilful pressure from behind. If these methods do not succeed, it is necessary to cut down upon the stone, and so remove it. The female urethra is very dilatable, and large stones have been known to be brought through it without difficulty.

THE VENEREAL DISEASE.

This formidable and loathsome disease is generally the consequence of impure sexual intercourse; but in the various and complicated relations of society, it may be in many cases received very innocently: This disease is generally supposed to be owing to a poisonous matter introduced into the system by absorption, and thus producing more poisonous matter, which, in time, corrupts the fluids, and occasions many disorders in the various parts of the body. The symptoms of the venereal disease, or syphilis, are either primary or secondary.

1. *Primary symptoms.* The primary symptoms of syphilis are those which occur in the near vicinity of the place to which the matter has been applied, and which show themselves not long after its application: the secondary are those which occur in distant parts, and which, in some instances, do not show themselves until a very long period after the infection has been received. As the infectious matter is commonly introduced by an impure connexion, the first symptoms generally show themselves on the genital organs, in the form of chancre; by which is meant, an ulcer considerably inflamed and painful; unequal at the bottom, with prominent edges of an ash colour, having little tendency to heal, but rather continuing to spread, if left to itself. The matter being taken up by the absorbents, is carried by them to the nearest glands; these glands are irritated, become inflamed, swelled and painful, and go on to suppuration: when in the groin, these swellings are termed buboes. If the syphilitic matter be applied to the hand, as may happen when a surgeon having a slight cut or scratch,

gets some of it from dressing a venereal sore; or to a patient, from being bled with a lancet which has opened a bubo, or to those who wash the clothes of infected patients; in all those cases, the same symptoms ensue, and the glands in the arm-pit are the seat of swelling and suppuration. Sometimes, nurses get the syphilitic infection from suckling children who have been born with the disease, and in them it appears on the nipples; and the glands of the arm-pits swell. If the matter be applied to the lips, the glands of the neck swell. The symptoms above mentioned, viz. chancre and bubo, are to be regarded, then, as the primary and local symptoms of the venereal disease, and the constitution may be still unaffected; but, unless these are checked in time by the proper remedies, the poison may pervade the system, and produce other bad effects.

II. *Secondary symptoms.* In whatever way the matter has entered, it is particularly apt to attack the throat. In the venereal sore throat, some uneasiness is felt in swallowing, and there is a sensation of fullness and tenderness, without much pain. When the throat is examined, an ulcer is in most cases observed, generally on one of the tonsils or almonds of the ear, but sometimes on the uvula. These ulcers are small at first, but sometimes quickly spread, and destroy a portion of the contiguous parts; from the first, they are foul, and have a degree of fullness and swelling, with an erysipelatous redness of the neighbouring parts. Sometimes there are dark copper-coloured spots on the throat, continuing for weeks. A troublesome attendant of the sore throat is the constant heat and irritation of the parts, with the formation of acrid tough mucus, which gives the patient much trouble to throw it off. Deafness is not an unfrequent accompaniment of the sore throat. Sometimes, when the disease has been neglected, or when the remedies do not succeed, the ulceration spreads beyond the soft parts, and destroys the bones

of the palate, and back parts of the nose.

Next to the throat, the nose is most liable to be attacked by the venereal disease. The patient complains of a stoppage in one of the nostrils, with tenderness and pain at a particular point. When this point can be seen, it is found covered with a slough or crust, with a foul sore beneath. There is a discharge, which increases as it continues, and is thin and ill-smelled. If the thin spongy bones of the nose become affected, the matter becomes blackish, and the smell is very offensive. Portions of the bones come away, and, in time, the figure of the nose is changed; at first, by the external parts becoming red and swelled, over the ulcerations; and then by the bones coming away, it loses its prominency, to the great disfiguring of the patient. Ulcers also take place on the palate and other parts of the mouth; and the destruction occasioned by their progress in the parts necessary for the formation of the voice, occasions a total loss of the power of modulating it.

The skin is the part next most liable to be affected by the venereal disease. On the skin, there appear eruptions or blotches, chiefly on those parts which are generally kept covered, as the breast and arms; and successively, on the shoulders, thighs, legs, feet, and hands. These blotches are not painful at first, but have a slight degree of itchiness. They are of a pale red colour; and sometimes disappear for a time, and again either attack the same parts, or appear on others. The skin is now inflamed and tender, and a scab or crust forms on the parts. When ulcers attack a person who is tainted with the venereal poison, they are generally of a bad and eating nature, destroying a great deal of the surrounding parts. In the advanced stages of the disease, the bones of the extremities and of the forehead are liable to be affected with swelling, and a hard, unequal, knotted appearance. The hair falls off, blindness attacks the patient, and a va-

riety of maladies assail him, which finally destroy life in misery and putrefaction.

Cure of the venereal disease. Nothing could exceed the alarm and dismay occasioned in Europe, by the wide-spreading ravages produced by this disease, shortly after its first appearance in 1493; and it was not till a considerable number of years afterwards, that the casual coincidence of its occurring in certain persons, who were treated by mercury for diseases of the skin, and who were cured of both complaints by that mineral, led to the discovery that mercury was capable of safely and completely curing the venereal affection. From that time, this dreadful scourge was divested of the terrors excited on its first appearance; and physicians, till within these few years, have been quite confident of safely curing the vast majority of venereal cases by the prudent use of mercury; but of late, it has been suggested, that the dreadful havoc made on the constitution is not the effect of the venereal poison, but of the combination of it with mercury. It has been proposed in consequence, to cure the venereal without mercury at all, and numerous cases have in that manner been successfully treated. It is not, however, easy to get rid of the conviction impressed on the mind, by the recorded experience of able and upright physicians during three hundred years; nor to forget what we have observed in our own practice; we can not, therefore, as yet, discard mercury as entirely unnecessary, or condemn it in all cases as pernicious. At the same time, we admit that it has been sadly abused—that much evil, in not a few cases, has been produced by its injudicious use; while there can be no possible doubt that in numerous instances, the disease can be effectually and promptly removed by a plan of treatment in which the employment of mercury is entirely omitted.

There are some constitutions to which mercury is peculiarly adverse, and in which syphilis appears to gain ground under almost every manner of

administering it; and the rapid, violent, and long-continued salivations, at one time too common, were unquestionably exceedingly likely to inflict irreparable injury on the constitution. But we nevertheless at the same time believe that the skilful and prudent exhibition of that active and important mineral is calculated with ease and safety to cure the disease in every stage, both primary and secondary; and to guard the constitution from all those hateful effects, of which the early writers give such just and affecting details, in works which were written before mercury was employed in its cure.

1. *Chancre.* If a chancre has been seen by the surgeon when recent, it is to be treated by local applications; it is to be dressed with simple cerate, and if it be touched with lunar caustic, it will the sooner put on a healthy action. It may happen, that the application of the caustic will cause a swelling in the groin, which may be mistaken for true bubo; but this will go off when the irritation from the caustic subsides, or it may be kept back by cooling lotions. Nearly the same treatment will answer even somewhat later; but it will be a matter of precaution to bring the system in a slight degree under the influence of mercury, until after the chancres have healed.

2. *Bubo.* When we find that we can not prevent the formation of a bubo, by leeches and cooling applications, our best plan is to bring it forward to a kindly suppuration by emollient poultices; and when it is ripe, to open it with a lancet, like a common abscess. It will be still more necessary now to put the system under the influence of mercury; though there is no occasion to use it to the profuse extent formerly too common. In scrofulous constitutions, buboes are sometimes the commencement of extensive ulcerations, which are very painful, and discharge a very acrid matter. The pain is to be alleviated by washing the parts with a decoction of poppy heads, and afterwards applying some emollient plaster. If there be a tendency to fungous

growth, it may be proper to sprinkle upon it a little red precipitate of mercury, and to dress with basilicon or other stimulating ointment, till a better action is put on by the parts. Internal medicines are necessary, as sarsaparilla, or the nitric acid; and unless there are urgent symptoms of the original disease threatening the destruction of important parts, it will be prudent to suspend the use of mercury by the mouth, or by friction. If the constitution be feeble, bark and wine, and other tonics are to be given; and irritation is to be allayed by the use of opium or hemlock.

3. *Constitutional symptoms.* These are so many and so various, that it is needless to enumerate them again, since for each of them, mercury is the principal remedy; and the skilful exhibition of it, and the application of appropriate remedies to local symptoms, are the great instruments we employ. Gargles and washes are to be used for the throat, dressings for ulcerations, and sudorifics for the skin; all in addition to the mercurial course, which, in different cases, will require to be continued for various lengths of time.

Under the article mercury, we have mentioned the symptoms occasioned by its use, and the proper method of conducting a mercurial course; and it is one mark and evidence of the improved condition of medical science and practice, that the tedious, debilitating and dangerous courses of mercury formerly in use, are now almost entirely laid aside. The unpleasant consequences arising from mercury improperly administered, naturally excited with many a wish that some other medicine might be discovered, free from the inconveniences of mercury, and equally efficacious; and accordingly many articles of the *materia medica* have been successively brought forward, and many virtues ascribed to them in the cure of the venereal. Some of them may, no doubt, be useful auxiliaries, and some of them may give relief in certain symptoms, as opium, sarsaparilla, the nitric acid, and some

others; but, for promptitude and certainty of its curative powers, nothing can be compared with mercury. Whether the modern method of curing the disease without mercury, will be found to answer, in all cases, must be left for further experience to determine.

WARTS.

Warts are excrescences from the skin, having the surface pointed or granulated, sometimes being very painful when rubbed, and liable to bleed when touched. Young people are often much infested with them, and as they appear in great numbers about the hands, they are very anxious to get rid of them. Sometimes warts disappear of themselves, and leave the skin quite clean; but it is generally necessary to adopt some means for their speedier removal. This is not very difficult; some stimulant application, as savine ointment, or blue vitriol, or lunar caustic, or potash, will answer the purpose; and it is proper first to pare off the tops of them, to let the stimulant reach the sensible surface. When they are removed by the knife, it is necessary to apply caustic to destroy their roots completely. The juice of the green rind which envelopes the black-walnut, applied to warts, will very generally cause them to disappear. When warts have a narrow neck, a silk thread or horse-hair may be tied round them, and they will drop off in a few days. Warts are often a sequel of venereal complaints. They are then to be cured by the remedies suited to the original disease; and they may be rubbed with red precipitate ointment, or some other stimulant application.

WASP STING.

The wasp seldom stings unless irritated; but when it does, the injury it inflicts is accompanied with a sharp pain, followed by inflammatory swelling in the neighbourhood, which occasionally extends over the whole limb. It generally ceases of itself, but may be relieved by the application of barts-horn, or spirits of wine, or other cool-

ing lotion. If a person has been stung by a great many wasps, as sometimes happens when they are irritated by the destruction of their nest, a considerable degree of fever may be excited, and this will require some cooling medicine, and the application of oil to the inflamed parts of the body.

WEN.

Wen is the common popular name for any fleshy excrescence or tumour, growing on any part of the body; most frequently, however, it is applied to tumours about the throat and neck. Tumours on the surface of the body, are distinguished by surgeons, according to the nature of their contents; and they require treatment varied according to circumstances. Sometimes wens are attached by a narrow neck, and may be removed by the knife, or by ligature; at other times, they have a broad base, and are so supplied with large blood-vessels, that they cannot be removed at all, or cut without the utmost risk. Sometimes wens are filled with a curdy or cheese-looking matter, and are contained in a cyst, or bag, which must be dissected out, along with its contents, and the cut skin will heal, and leave very little deformity; in other cases, the tumour is *fungus hæmatodes*, or bloody cancer, which pretty certainly destroys the patient. The bronchocele, or goitre, is to be treated with iodine ointment, and the tincture of iodine internally; the vessels that go into it are so large and numerous, that an operation can rarely be performed there. Sometimes very large wens contain a mixed substance, resembling fat or marrow; they have a firm fleshy feel, and sometimes attain an enormous size. Sir Astley Cooper removed from the abdomen of a man, a fatty swelling, which weighed, independently of the blood in it, thirty-seven pounds, ten ounces.

WHITLOW.

The whitlow is an inflammation or suppuration at the last joint of the fingers, near the nail; but the toes may

also be the seat of whitlow. There are several kinds of whitlow, the peculiarities of which are owing to the different depths of the parts which are the subjects of the disease. 1. The suppuration may take place merely beneath the outer skin, in which case the disease spreads a considerable way round the joint. If the abscess takes place under the nail, the pain is very severe. Emollient poultices, and giving vent to the matter, seem to be alone required in this kind of whitlow. 2. The inflammation may occur in the cellular substance at the point of the finger; in this case, the pain is considerable, and the swelling advances more slowly. The pain may extend a considerable way up the arm. Sometimes pretty severe febrile symptoms arise in this kind of whitlow; and it is necessary to use bleeding, and the other parts of the antiphlogistic regimen. Bleeding by leeches, and dividing the skin over the pained part by a crucial incision, will sometimes relieve the pain, and prevent the suppuration. If we find that we are not likely to do this, we must promote it by emollient poultices and fomentations, and open the abscess as soon as it is ripe. 3. A third kind of whitlow is marked by the most acute pain, which extends to the hand, the wrist, the elbow, and even the shoulder. With all this severe pain, there is little swelling in the affected finger; and even when matter is formed, the fluctuation of it cannot be perceived at the finger, though it may sometimes be felt at other parts of the hand and arm. This is owing to the inflammation of the finger being seated in the sheaths of the tendons, which, being strong and unyielding, are painfully stretched, but do not allow the matter to be felt under them. In this case, we must not wait till we can feel the fluctuation of matter; but we must cut deeply down through the sheaths of the tendons; and we must make incisions, also, in other parts of the hand and arm, if the pain in those parts is not relieved by the opening first made. 4. The fourth species of whitlow is that in which the

periosteum, or the membrane covering the bone, is inflamed. The pain is here very acute; and as the disease advances, the bone itself becomes affected with caries. Here, early incisions, quite down to the bone, are necessary; and when these have not availed to prevent the caries of the bone, it will be necessary to amputate one or two joints of the finger.

WOUNDS.

Wounds are divided into various classes, according to the nature of the instrument with which they are inflicted, and the effect produced. They may all be included under the head of gun-shot wounds, simple incised wounds, lacerated or contused wounds, and punctured wounds.

1. *Gun-shot wounds.* These include not only the injury inflicted by bullets, balls, and the like, but those also which are occasioned by the bursting of bombs, shells, and the flying about of splinters, fragments of stone, &c. It is now acknowledged, that the violent injuries inflicted by fire-arms, depend solely on the weight, bulk, and velocity of the substance impelled, and the parts injured; and have no connection whatever with burning or poisoning from the explosion of the powder. A shot may occasion merely a contusion, or it may penetrate the surface, and lodge in a part; or it may pierce through and through, or a very large shot may tear off a limb. These different effects may be combined with the shattering of bones, or the wounding of vessels, or the lodgment of foreign bodies.

When a gun-shot wound has been received on any of the extremities, the first thing for the surgeon to consider is, whether he will attempt to save the limb, or whether it be necessary to amputate. He is then to consider the propriety of immediate amputation, or if it should be delayed; and the skill and too ample experience of modern surgeons have ascertained, that in a great majority of cases, if amputation is necessary at all, immediate amputation gives the patient the best chance for his

life. The following are some of the cases in which immediate amputation is necessary. 1. When a limb is torn off. 2. When the bone and other parts are much shattered. 3. When much of the flesh and soft parts are torn away, or when the large artery of the limb is wounded. 4. When the muscles and nerves are much injured. There are other circumstances to be taken into consideration, as whether the patient is likely to be taken with proper care to an hospital, whether the wounded must be left on the field, &c.

When amputation is not to be performed, the wound is to be treated on general principles; foreign bodies are to be extracted, and incisions made where necessary, to get either at the ball, or at any foreign body. It was at one time recommended, uniformly to make incisions, or to dilate gun-shot wounds; but, as a general rule, this is found not to be at all necessary, as these incisions must add to the pain and irritation, which are already very great. We must not even be too anxious about getting out every foreign body, or even the ball, when to do this is very difficult; as it is probable that a suppuration will come on, and contribute to its discharge. The course and contents of the wound, when it is large enough to admit the finger, are better examined by it, than with a probe or other instrument. When extraneous substances do not occasion suppuration, so as to bring them into view, and render them easily extracted, they often give rise to a fistulous ulcer. Sometimes balls and other bodies get into a place where they do no injury, and remain during the patient's life. It is an improper practice to put tents into gun-shot wounds. The first dressings should be mild, unirritating, and superficial; and to promote the separation of the bruised and dead parts, and to assist in removing the tension and swelling, emollient poultices and fomentations are to be employed; the application of leeches is also very proper, and for the general system, we must observe the antiphlogistic regi-

men. From the bruising and compression of the parts, there is often but little bleeding at the first, and we are to watch for a more sudden bleeding when the dead parts drop off; and, therefore, when the wound is near the tract of any large vessel, we should be prepared for this event, and have every thing in readiness for stopping bleeding. Care should always be taken not to remove the dressings too hastily. If the wound does not heal, but continues long to discharge matter, occasioning a wasting of the body, with hectic fever, and other dangerous symptoms, amputation then becomes necessary to save the life of the patient.

The following remarks on gun-shot wounds, from the lectures of Mr. Abernethy, are judicious and sufficiently characteristic :

"I now come to speak of gun-shot wounds, and this is a kind of wound attended with the greatest possible confusion. The practice in France, in Louis the Fourteenth's time, was to slit open the wound in its whole length, in order to give exit to any blood or matter—nay, they put setons through the wound. Mr. Hunter very much simplified the surgical practice in gun-shot wounds, and used, as well as recommended in his lectures, a soothing plan of treatment. Of course they are to be treated upon the common principles of surgery. In speaking of gun-shot wounds, the question is whether the ball has gone through or not, and this creates considerable anxiety to the relatives—if with a probe you can feel wadding, clothes, or the ball, why common sense would tell you to take it away; but common sense will equally tell you, not to be poking about, and being over curious, for you can not tell where the ball is gone to. It is really curious the course which balls will sometimes take; and it is founded on the laws of projectiles—a ball may strike on the abdominal muscles, and go out through the other side. It is within the compass of possibility that the ball may pass in at the belly, and by passing quite round, may come out

at the same wound. When I was an apprentice, I recollect a case which made some impression on me. My master was gone out of town, and I was called up from my bed one night to a man who had shot himself through the temple. When I arrived, there was a hole in the right temple, where the ball had gone in, and one on the opposite side, where, I took it for granted, it had come out. I, of course, thought the man was shot clean through the brain; but he retained his senses, and had all his faculties about him. This was puzzling enough, in all conscience; but as I wished to be doing what I thought right and proper, I bled him, and ordered his head to be shaved—the course which the bullet had taken was then apparent enough, for it had travelled under the scalp, and had passed out at the opposite side, and the track of the bullet was indicated by a red line running all over the scalp. One of the strangest cases of bullet-travelling was related by Sir James Earle—the bullet went in under the blade-bone, and came out at the loins on the opposite side. Great stress is always laid on the necessity of extracting the ball. Nay, in almost every novel, where a duel is often the consequence of rivalry in love, do we not read that 'Sir Harry has been wounded, but the ball was extracted, and that Sir Harry was expected to recover'?

"All gun-shot wounds being very likely to produce sloughing, you should guard yourself by a double prognostic; for although no injury may be apparent at first, yet sloughing of an artery may happen, and destroy the patient by sudden hæmorrhage. A sailor was found dead in his bed one night, and the bed half full of blood—the femoral artery had been slightly grazed, and had sloughed—at first, however, the case, to all appearance, was going on favourably, being a slight and trivial gun-shot wound.

"Poultices are good in gun-shot wounds—and great care is to be taken that the digestive organs are tranquilized. In superficial gun-shot wounds,

as a line of demarcation is set up, it will not be so difficult to trace out the bullet; but in deep-seated wounds of this nature, I again caution you not to be poking for bullets, as great irritation is brought on thereby."

II. *Simple incised wounds, or cuts*, are those which are inflicted with a clean cutting instrument, and they are to be considered as the most favourable kind of wound. When the bleeding has stopped, the edges of the wound are to be brought together, and kept so by straps of adhesive plaster, and proper bandages; or, in some situations, by one or two stitches; and when this apposition has been carefully made, such wounds generally heal very quickly, without any suppuration taking place. The popular application to cuts of rum and sugar, soot, balsam, turpentine, salt and vinegar, and the like, are all decidedly improper. So far from facilitating the healing of the wound, they retard it by producing undue inflammation.

III. *Lacerated and contused wounds*, are those where there has been much tearing and bruising of the soft parts; they heal less kindly, and suppuration is almost always a stage of the process. When a part is torn, we are to place it in its natural situation, and retain it there if possible; but if there appears little likelihood of its uniting again to the neighbouring parts, it is better to remove it; and we are to diminish the swelling and inflammatory symptoms which commonly attend contused wounds, by cooling lotions, or by emollient poultices and sometimes by leeches.

IV. *Punctured wounds*, are such as are inflicted with a pointed instrument, as a thrust from a bayonet, a short sword, a graver's tool, or the like. The

first thing to be guarded against in such wounds, is the coming on of inflammation. If there has not been much bleeding from the wound, we may take blood both generally and locally, and we are to employ the antiphlogistic regimen. Punctured wounds on the scalp, over tendinous places, or parts which are thinly covered, as the bones of the leg, are apt to be followed by an erysipelatous inflammation of the skin. It may sometimes be necessary to enlarge the wound a little, in order to remove the stretching of the parts; and to lessen the inflammation, leeches and fomentations are proper.

WRY NECK.

This term is generally applied to a long continued or permanent turning of the head to one side. It is different from the pain and stiffness which occur from cold and rheumatism, and which prevent the free motion of the head. It arises from various morbid conditions of the part, either from distortions of the vertebræ, from palsy of some of the nerves going to the muscles that move the head, or from some altered structure of the muscles themselves. The removal of this affection, when possible, is accomplished by treatment adapted to the particular cause inducing it. The bones of the neck may be aided by machinery, if the subject is young; blistering, friction and shampooing, long persevered in, have been of service in the paralytic affections of the nerves and muscles; and at one time, it was a favourite practice to cut across the large muscle, extending from the ear to the breast-bone, which was generally supposed to be in fault. This severe measure very often was unsuccessful, and is hardly ever to be recommended.

PART V.

DISEASES, THEIR SYMPTOMS, CAUSES, AND TREATMENT.

INTERMITTING FEVER.

INTERMITTING FEVER, or, as it is more popularly called, *fever and ague*, or *chills and fever*, is a fever composed of several distinct paroxysms, with a perfect intermission, or period when no fever is present, interposed between each.

Each paroxysm of an intermittent is composed of three stages, which successively follow each other, with considerable regularity—namely, a *cold* stage; a *hot* stage; and, finally, a *sweating* stage, which terminates the paroxysm.

Previously to the attack of this, as well as of almost every other form of fever, provided it does not come on during sleep, or when the attention is strongly directed to some engrossing object or pursuit, a feeling of languor and debility is experienced, with a sluggishness in motion, and some uneasiness in attempting it. The face and extremities become pale; the nails of a leaden or livid colour; the features shrink; the bulk of the body is diminished; and the skin appears as if constricted by cold. A feeling of coldness now comes on in the back, resembling often a stream of cold water running down it, and soon extends over the whole body, though, at this time, the skin of the patient will often feel warm to another person. The sensation of

cold soon increases to a tremor, and this to rigours and shiverings, in some cases almost convulsive, with an indescribable feeling of distress. The mind is more or less unsteady and confused, attention and recollection are difficult, and complete stupor is, sometimes, an early symptom. The pulse becomes weaker, and sometimes slower than before the attack; but as the cold increases, it is always smaller, and very generally quicker. The respiration is small, frequent, and laborious; the appetite ceases; a nausea and sometimes vomiting come on; the matter discharged being very generally bilious. The secretions are, in general, diminished, many of them entirely suspended. The urine discharged is watery; the mouth is dry and clammy, and the tongue covered with a thick white or yellow crust; ulcers no longer discharge; and tumours diminish in bulk, or disappear. Sometimes in this stage, but more frequently in the ensuing, head-ache comes on; but a constant symptom, but little noticed by the generality of writers, is wandering pains over the whole body. Pain in the back is generally mentioned, but pain is likewise felt in every joint, seldom continuing fixed, but disappearing and returning; it is not sharp and pungent, but tensive and dull. A striking change takes place in the features of the patient: in general, they appear to be

sunk ; but their real appearance is difficult to be described.

The above symptoms, which are those of the cold stage, vary in different individuals, being slight, almost imperceptible in some; in others, very severe. They are more severe in the old and debilitated, than in the young and strong, and last from a few minutes to many hours. The duration of the cold regulates that of the succeeding stage; if it be short, the fever is, in general, of long continuance, and vice versa.

After a time, differing, as we have just remarked, in almost every case, the chilliness seems to abate, or to alternate with slight flushes of heat. These soon give place to continued and increased heat of the skin. The surface of the body now becomes smooth and red, and the countenance of a deep rose tint. The mind is still more or less confused, and sometimes delirium is present. The pulse becomes more regular, hard, and full; the respiration more free, but still frequent and anxious; the thirst increases; the urine becomes of a deep red, and often occasions pain when passed; external tumours again enlarge; and ulcers produce their discharges. The sensibility, diminished in the cold stage, is recovered, often greatly increased; the headache is frequently extremely violent, and accompanied with a throbbing of the temples; and often there are severe pains in the back and limbs.

After an uncertain period, these symptoms abate. A sweat now gradually breaks out, and soon becomes profuse. The urine deposits a sediment; all the painful symptoms disappear; the skin becomes cool, as well as soft and moist; the pulse abates in frequency, is less full and hard, and the patient is restored to a state of comparative health. Still, however, many of the functions of the body are disturbed; the appetite is, in general, deficient; the individual feels weak, irritable, and very sensible to slight degrees of cold. He is pale; easily fatigued; the tongue is coated with slime; and a

sensation of weight or fullness is experienced at the stomach.

According to the duration of the intermissions, intermittent fevers are divided into the *quotidian*, or every day fever; the *tertian*, or every other day fever; and the *quartan*, or every third day fever. In the *quotidian*, the paroxysm occurs every day, with an interval of twenty-four hours. The ague generally commences in the morning, and with the fever, usually lasts about eighteen hours. In the *tertian*, the paroxysm occurs every second day, with an interval of forty-eight hours. The ague commences at noon, and with the fever, usually lasts twelve hours. In the *quartan*, the paroxysm occurs every third day, with an interval of seventy-two hours. The ague commences in the afternoon, and with the fever, lasts about nine hours.

These forms of intermittents frequently change into one another; thus, both tertians and quartans change into *quotidians*, while *quotidians*, on the other hand, are apt to change into *re-mittents*.

Besides the above forms of intermittent fever, there are many others which writers on the disease have described with great minuteness. Thus, we have double, triple, and duplicate tertians, with as many varieties of the quartan form. Into the peculiarities of these, it is unnecessary for us to enter on the present occasion. All that the reader has to recollect is, that all fevers marked by a distinct chill, followed by fever and sweating, and terminating in a more or less perfect remission of all the symptoms, the ague occurring at tolerably regular intervals, are included in the class of intermittents.

The duration of an intermittent is very variable. Those which occur in the spring, frequently disappear with the advance of summer. Those which attack in the autumn are more obstinate, especially when of the quartan form, being very frequently complicated with chronic affections of the spleen, liver, and other abdominal viscera. A very great deal, however, will depend

upon the nature of the treatment had recourse to, and the habits of the patient.

In persons of robust habits, the symptoms, during the hot stage of intermittents, are occasionally very violent, and demand active depletion for their removal. In those of a weak, relaxed, or broken-down constitution, or where the disease has continued long, or has frequently recurred, the symptoms of fever, and of inflammation, are seldom so decided, and active blood-letting is less admissible.

The most common consequences of intermittents, when of long continuance, or when they attack frequently the same individual, and especially when they have been neglected, or their cure has been attempted by improper remedies, are chronic inflammation and enlargement of the liver; jaundice, indigestion, emaciation, livid colour of the skin, dropsies, either general or local; induration of the pancreas; enlarged spleen, &c.

The usual cause of intermittent fever is, unquestionably, exposure to the exhalations from low marshy grounds, the low banks of rivers, or inundated plains. The disease may, however, be produced by a variety of other causes, the most frequent of which is, cold, united with dampness, in whatever manner applied to the body. They are most liable to have the fever induced by any of the above causes, whose systems are in a state of exhaustion, or morbid irritability, whether produced by excessive fatigue, exposure to extreme heat, intemperance, deficiency of food or that which is of a bad quality, long watching, the depressing passions of the mind, preceding disease, &c. In those who are predisposed to its attacks, exposure to the cold and moist air of the night, will more frequently produce an attack, than almost any other cause, especially if the exposure take place during sleep.

In the cure of intermittent fever, the two leading indications are, 1st. To shorten the paroxysm, and render the intermission perfect; and, 2dly. To pre-

vent the recurrence of the paroxysm in future. Our remedies must of course differ according to the different periods of the disease.

During the cold stage, or just before its commencement, the patient should be put to bed, under a sufficient quantity of bed-clothes, to excite and keep up the heat of the skin; at the same time, bottles filled with hot water may be applied to his arm-pits, sides, feet, and groin; taking care, however, that the water be not so hot as to produce an injurious effect upon the skin. This being done, there should be administered to the patient a large draught of some simple warm drink. A great variety present themselves for the choice of the practitioner; thus, warm lemonade, a weak infusion of common tea, of balm, or of snake-root, will answer every purpose. In conjunction with any of these warm beverages, the effervescing mixture, taken at intervals, will often be beneficial, especially towards the close of the chill.

In young and robust habits, where the chill is but moderate, and the attack of the disease recent, we must be extremely cautious not to attempt to shorten the cold fit, by the use of any article of a stimulating nature; as this would have a tendency rather to prolong the chill, or at least to increase the symptoms of the succeeding or hot stage. In the cases here described, probably one of the very best means of cutting short the chill, and curing the disease, is the abstraction of blood from the arm, when used with great caution and judgment. The bleeding should be performed at the very commencement of the cold stage; after, however, the shivering has come on: later than this it is of more doubtful propriety. From twelve to eighteen ounces may be taken away, according to circumstances; after which, the patient should be allowed to lie perfectly quiet for an hour or two; but not covered with too many bed-clothes; he should be supplied, immediately after the arm is tied up, with a cup of warm tea, or gruel, or thin panado.

When the patient is of an infirm habit, or has been greatly exhausted by the disease, particularly where the chill is obstinate and violent, he may often take, with advantage, a tea-spoonful of a solution of ammonia, in a tea-cup full of warm tea or whey; or the acetate of ammonia may be used in the same manner; the same dose of either being repeated, if the first should produce no good effect.

In many cases where the paroxysms have recurred regularly for a long time, one of the most powerful means we possess of shortening the chill, is undoubtedly the operation of an emetic, given just as the ague is about to occur, and followed by immersion in a warm bath, or by bathing the feet in warm water, the administration of thirty drops of laudanum, and the application of sinapisms to the feet and ankles. The emetic will frequently not only shorten the cold stage, but will influence beneficially those which succeed, rendering the symptoms of the hot stage milder, causing a more speedy appearance of perspiration, and a more complete remission. It has even been known not unfrequently to prevent entirely the expected paroxysm. In this case, as the skin begins to regain its heat, and becomes softer and moister, the effervescing mixture, or some mild drink of tepid warmth, and rendered slightly sour with lemon-juice, should be administered, and the patient must remain in bed during the whole of the time that would have been occupied by the expected paroxysm, or, if sweating occur, until this ceases.

When the hot stage does occur, a very different treatment is demanded. Whatever increase of bed-clothes had been added, during the chill, is now to be removed; and if the heat of the patient's skin is very great, he should be entirely uncovered, and the bed curtains raised, so as to allow of a free access of the cool external air. All the drinks given should now be cold, and whenever the patient is young or robust, his pulse hard, full and rapid, and he complains of pain of the head,

back, or extremities, bleeding either from the arm, or by cups or leeches from the head and over the stomach, or both, will be required. The quantity of blood to be drawn off can only be determined by the circumstances of each case, and the effects produced during its flow. In recent cases it should seldom be omitted; and whenever the fever runs high, upon its judicious employment, the speedy and effectual cure of the patient will mainly depend. After bleeding, in most cases, it will be proper to administer a dose of calomel and jalap, followed by a solution of salts or senna tea. The calomel is especially required, where there is an indication of a loaded state of the stomach and bowels.

Whenever the heat of the skin is considerable, if at the same time it be perfectly free from perspiration, the application of cold, by spunging the surface with either cold water or vinegar, will tend greatly to reduce the fever, and, at the same time, shorten the paroxysm. When there is great pain of the head, with flushed face and throbbing at the temples, or any degree of delirium, cups to the head, followed by cloths wet with cold water to the scalp, and renewed as they become warm, will give great relief. Pain or burning at the region of the stomach, with frequent nausea or vomiting, will best be relieved by cups to the epigastrium and cold mucilaginous drinks, slightly acid; as apple water, barley water with the addition of lemon-juice, solution of currant-jelly in water, &c.

The diet of the patient, during the hot stage, should be very spare; indeed, nothing should be allowed, in the majority of cases, excepting some bland fluid for drink; any of those mentioned in the last paragraph may be given. All stimulating drinks, and solid, or animal food, are to be strictly prohibited.

During the sweating stage, little is required, excepting to avoid every thing that may have a tendency to check the perspiration. The drinks, as soon as the skin becomes moist, should be

about milk-warm. The patient should be lightly covered with bed-clothes; and it is important that he remain in bed until the perspiration has entirely ceased, and the skin has regained its natural temperature and dryness.

The second indication, in the cure of intermitting fever, is to prevent the occurrence of subsequent paroxysms. For this purpose, no remedy can be placed in competition with the Peruvian bark, or some one of its preparations. The bark, when unadulterated and judiciously administered, is confessedly the most efficacious medicine we possess for preventing the return of the chills, and as such, has for many years enjoyed the confidence of a majority of the profession. Of late years, the bark in substance has, in a great measure, been superseded by the sulphate of quinia. Although we are not prepared to say that it possesses all the virtues of the former, yet, under certain circumstances, it is an invaluable remedy. The smallness of its dose renders it more readily taken than the bark itself, and it is more easily retained upon the stomach; it is likewise not so apt to be adulterated, and in cases of the disease affecting children, may be given when it would be impossible to give the bark itself in any form.

Neither the bark nor quinine should be given, excepting when a perfect intermission has been obtained, and the stomach and bowels are entirely free from irritation. If then there be any degree of heat of the skin, or feverishness; pain of the stomach, side or back; a hard, full or active pulse; a loaded state of the tongue; a feeling of weight or uneasiness about the abdomen; a bitter taste in the mouth, bilious vomiting, or disordered bowels, the use of the bark should not be commenced until these are removed. Those symptoms which indicate fever or local irritation, must be removed by bleeding, a spare diet, and leeches to the seat of pain or uneasiness; and those which denote a foul state of the stomach, or an irregular condition of the bowels,

by mercurial purgatives, of which a very excellent one is composed of five grains of blue mass, the same quantity of rhubarb, one of ipecacuanha, and three of soap, which are to be made into three pills for a dose, and repeated if necessary. The warm bath and frictions to the surface, and occasionally cups over the region of the stomach, will be found highly beneficial.

The dose of the powdered bark for a grown person is a drachm or two every two or three hours, according to circumstances. When the bark alone will not stay on the stomach, fifteen grains of powdered snake-root added to each dose will often cause it to be retained; or ten grains of powdered cinnamon, or twenty of Seville orange peel powdered may be added. The following is an excellent prescription in many cases: one ounce of powdered bark, two drachms of snake-root powdered, and two scruples of the bicarbonate of soda, for eight powders. Where the bark in substance is rejected, a decoction or infusion may be tried; one ounce of the bark may be boiled or infused in a pint of water, in a close vessel, and a wine-glass full taken every three hours, when cold; or we may add to the bark the same quantity of snake-root, or cinnamon, or Seville orange peel, which, to some stomachs, renders it more agreeable.

The dose of the sulphate of quinia is from one to two grains every three hours. It may be given in a pill or solution. The best mode of giving it in solution, is to take fifteen grains of the quinine, one drachm of the elixir of vitriol, five ounces of cinnamon water, and three drachms of sugar; the dose of which is a tea-spoonful every hour.

Several extracts of bark are employed in the cure of intermitting fever. When of a good quality, the extract will often prove an effectual remedy—dose, one grain every one, two or three hours.

Sometimes the bark, when given in substance, will act upon the bowels, producing considerable purging. When

this is the case, it is proper to add to it a small quantity of opium, or some astringent, as kino, or extract of log-wood. If, on the contrary, the bark occasions costiveness, to each dose a portion of rhubarb should be added.

Many articles have been proposed as substitutes for the bark and its preparations in the cure of intermittents. A few of these we shall notice; premising, however, that when the bark or the quinine can be procured of a good quality, it is always to be preferred.

The most common substitute for the bark is Fowler's solution of arsenic. It will generally, when properly administered, cure the disease very promptly. Its use, however, requires great caution, as it is very apt, when given in an over-dose, or in debilitated or broken-down constitutions, or when too long continued, to produce very unpleasant and even dangerous effects. Dose for an adult, from 10 to 20 drops three times a day. For a child, from two to five years old, 5 drops; from six to eight years, 6 or 8 drops; from eight to twelve years, 10 drops, and from the latter age to eighteen years, about 12 or 13 drops. The medicine should always be dropped from a half-ounce vial on a lump of sugar, or in a little sugar and water.

The bark of the dogwood is strongly recommended for its efficacy in intermittents. It may be given in the same dose, and under the same circumstances as the bark. The bark of the tulip tree (*liriodendron tulipifera*) has likewise been employed with good effect in the same manner as the bark. The wild cherry tree bark has also been found occasionally successful, even when other remedies have failed.

The common spider's web, rolled up into pills, and given to the extent of from 3 to 5 grains every three or four hours, has cured the disease in numerous instances, when given during the intermission. Its effects upon the system are those of a slight narcotic.

The sulphate of copper, in the dose of a quarter of a grain, combined with

one of extract of bark, and repeated every three hours, is employed by many practitioners in cases of long standing, and their report is decidedly in its favour. The same remark may be made in reference to the prussiate of iron, given in the dose of from 4 to 6 grains every four hours.

The diet and regimen of the patient during the intermission should be carefully attended to. The diet should be light, plainly cooked, and composed of articles easy of digestion. Rice, plain bread and butter pudding, bread and milk, weak chicken or mutton broth, or when the stomach is perfectly free from disease, a very small quantity of chicken or beef may be allowed. All high-seasoned, stimulating, indigestible, or flatulent food should be cautiously avoided. The patient's drink should be water, toast and water, whey, or weak lemonade. Such active exercise should be used as the strength will admit of. Frictions on the surface of the body, and the occasional use of the warm bath, are highly beneficial. The exercise, when the strength of the patient and the weather will permit, should be taken in the open air, but never pushed so far as to induce much fatigue. Exposure to cold and damp should be cautiously guarded against. The patient should be warmly clothed, and wear flannel next his skin. It is to be recollected that relapses are very easily induced in this disease, and hence the necessity of great caution for a long period after a cure has been effected.

In many situations, fever and ague is a disease which prevails extensively every year; and all who reside in such places are subject, more or less, to its influence. Under such circumstances, the only effectual preventive is a removal, without delay, to a more healthy district.

BILIOUS FEVER.

Bilious fever constitutes, in the middle and southern states, the principal form of our summer and autumnal epidemics. It may occur in different situations and seasons, or in different indi-

viduals, under the various types of a remittent, continued, or highly malignant fever, and attended by various degrees of arterial excitement. Though thus diversified in its features by peculiarity of constitution, climate, season, and modes of life, yet it is very generally attended in all cases by great irritability of the stomach, pain, burning heat or uneasiness at the epigastrium, and more or less affection of the head; rarely will all, or any of these symptoms be absent.

The most simple form of bilious fever is usually preceded for some days, by listlessness, languor, bitter taste in the mouth, nausea, aversion from food, sometimes costiveness, and more or less pain and heaviness over the eyes. These symptoms are followed by a chill or merely a sense of coldness, particularly about the back, which after a short time is followed by increased heat of the skin, flushed face, suffusion of the eyes, a quick, hurried, and somewhat tense pulse, prostration of strength, intense pain of the head and back, with sometimes a feeling of soreness in the limbs. The stomach is more or less irritable; being sometimes affected with nausea only; at others, rejecting immediately every thing swallowed. The bowels are generally costive, and the tongue, during the paroxysm of the fever, after the disease has continued for some time, becomes dry and covered with a whitish or light brown fur. There is at the same time considerable thirst, and sometimes delirium. The fever generally continues from eight to twelve hours, when a slight moisture may be observed on the surface, but more generally the skin continues dry after the heat has declined. A paroxysm of fever generally occurs once every day, sometimes twice in the same day. All the preceding symptoms, in an aggravated degree, with less distinct remissions, mark what has been termed the continued or inflammatory form of the disease. In this form, the tongue soon becomes dry, and covered with a dark or brown coating; the eyes are suffused, and of a yellowish hue,

languid and dull; the breathing is laborious; the head and back intensely painful, with aversion from light and sound, and generally delirium. The pulse is corded and quick, sometimes irregular. There is loss of appetite, nausea, and vomiting, the stomach frequently discharging a thick ropy fluid, of a yellow or green colour; the skin is intensely hot and dry, and often of a brownish or yellow colour, particularly about the face; the bowels are costive, or, if open, discharge only a thin watery fluid, with griping and tenesmus. When evacuations are procured by the operation of purgatives, they are copious, dark coloured, slimy and tenacious, and very offensive; the urine is scanty and high coloured. More or less tenderness always exists over the region of the stomach; sometimes this is only evinced when pressure is applied; in other cases it amounts to an intolerable sensation of soreness and pain, accompanied by fruitless efforts to vomit. There is also great oppression at the breast, with anxiety and difficulty of breathing. The remissions in bilious fever are often so imperfect as scarcely to be noticed; in other instances they are very distinct, and continue for many hours.

All the prominent symptoms increase in violence during the ensuing paroxysm, particularly the tenderness at the epigastrium, disturbance of the stomach, pain of the head, and delirium; the pulse becomes more full, frequent, and tense; the temples throb; the eyes assume a red and fiery appearance; and there is great restlessness and entire loss of sleep. This state of things may continue for many days, when, if not removed, they are followed by deep stupor; the tongue becomes parched, and nearly black, the skin cool, and covered by a clammy moisture; the pulse small and weak; the respiration short, quick, and laborious; low muttering delirium comes on, accompanied with involuntary discharges from the bowels, and finally death ensues. When, however, the case is mild and judiciously treated, all the more violent

symptoms gradually decline, the paroxysms of fever are shorter and less intense, the remissions more distinct and longer, until finally a complete state of convalescence is established.

The causes of bilious fever are almost the same as those productive of intermittents; hence, in warm or tropical climates, or during the warm season of more temperate climates, in all situations where extensive marshes exist, or indeed, any extensive collection of putrefying materials, the disease prevails extensively. A greater degree of heat would appear, however, to be necessary, to produce the bilious than the common intermittent type of fever; hence the former is the chief form of fever occurring in hot climates and seasons, and its prevalence and violence are generally in proportion to the rise of the temperature of the atmosphere above the medium degree. Intermittent fevers, on the contrary, prevail in more temperate climates, and are most prevalent during a chilly and damp state of the atmosphere. Besides the exhalations from putrefying materials, we may enumerate as the causes of bilious fever, exposure to excessive heat or to the night air in hot climates and seasons, violent exercise in hot weather, excess in eating, intemperance, violent passions of the mind, imprudent exposure, when the body is fatigued or overheated, to a draught of cool air, &c.

The treatment of bilious fever will depend very much upon the character of the symptoms by which each case is accompanied. Called in at the very commencement, or during the forming stage of the disease, or in a case of extreme mildness, an emetic may be exhibited. The prescription, under such circumstances, of from fifteen to twenty grains of ipecacuanha, combined with one of tartarized antimony, to an adult, will be productive of the most beneficial effects—often cutting short the disease, or moderating its symptoms when they do occur. But, at a later period of the fever, when the symptoms are fully developed; or when the attack occurs

in a robust, plethoric habit, and is preceded by pain or uneasiness, or a burning heat, about the epigastrium, an emetic would be improper—increasing by its operation the symptoms, rather than relieving them. If, however, the stomach is affected with distressing nausea or efforts to vomit, large draughts of some tepid drink, as weak chamomile tea, may often be administered with advantage.

When the disease is fully formed, and attended by great heat and dryness of the skin, a hard pulse, great pain of the head and back, flushed face and furred tongue, blood-letting constitutes our most important remedy. A vein, therefore, should be opened, and a quantity of blood drawn off, from a large orifice, sufficient to produce at once a decided impression upon the disease, as indicated by the diminished strength of the pulse, paleness of the face, and decreased heat of the skin; and the bleeding must be again repeated, if the violence of the febrile symptoms should return, without regard to the length, or rather shortness of the interval, or the quantity of the blood drawn; and it must be carried to such an extent as to insure the permanent reduction of the morbid action of the heart.

Local bleeding, by leeches or by cups, applied to the head or over the stomach, will very generally be demanded, after bleeding from the arm. Whenever in bilious fever the face is much flushed, the pain of the head violent, or delirium is present, the head should be shaved, and leeches or cups should be applied to the temples, forehead, or back part of the neck, and repeated until these symptoms are completely removed. And in all cases of the disease attended with much burning pain or uneasiness of the stomach, or with almost constant nausea and vomiting, leeches or cups to the epigastrium will produce the most beneficial effects.

By bleeding, general and local, properly timed, and carried to a sufficient extent, the relief obtained is often very striking. A degree of morbid action will be cut short in a few hours, which

may not be accomplished in days by any other means. The skin of the patient becomes relaxed, the tongue clean, and a state of calmness, frequently a refreshing sleep, succeeds to the previous restlessness and pain.

Next to blood-letting, no remedy is better adapted to cases of bilious fever than cathartics. They not only remove from the intestines a large quantity of vitiated matter, by which they are kept in a state of constant irritation, but by increasing the amount of the secretions furnished by the vessels of these parts, they assist in diminishing the increased action of the heart. Soon after the first bleeding, therefore, a dose of calomel and jalap, of each ten grains, for an adult, should be given, and followed in the course of a few hours by a moderate dose of salts, by a Seidlitz powder, or by a tea made of one ounce of senna, half an ounce of cream of tartar, and a drachm of fennel-seed, infused in three half pints of boiling water: dose, a wine-glass full every hour or two. Adding to the calomel and jalap one grain of ipecacuanha, will often greatly increase their efficacy. A very excellent purgative, in cases of bilious fever, is composed of calomel, fifteen grains, jalap and rhubarb, of each ten grains, gamboge, one grain, tartar emetic, one grain; to be made into eight pills: dose, one every two hours, until they operate.

When, however, the purgatives produce small, thin, watery discharges, they will in general do much more harm than good; whereas, when the discharges are consistent and dark coloured, and large in quantity, the most striking mitigation of all the symptoms of the disease quickly ensues. To bring away stools of the latter description, calomel, or the blue mass, is among the best remedies we can employ, either by itself, followed by castor oil, or calcined magnesia, or in combination with aloes, rhubarb, jalap, or scammony; as, calomel and aloes, of each three grains, to be repeated every three hours; or aloes, rhubarb, and calomel, of each two grains, repeated at the

same interval; or scammony, aloes, rhubarb and calomel, of each one grain, to be repeated every two hours; or we may give three grains blue mass, one grain aloes, and two of soap, every two or three hours. We should be careful that none of these prescriptions be continued so long as to produce any soreness of the mouth. It is also to be remarked, that little good can be derived from the operation of this class of purgatives, so long as any degree of increased arterial action, or tenderness of the stomach remains. These symptoms must first be subdued by bleeding, general and local; after which, purgatives will operate effectually, removing from the bowels a large quantity of vitiated matter, and speedily producing natural and regular discharges, when their use should be suspended.

In cases of bilious fever, after the abstraction of blood, if the skin remain dry, and its temperature considerably and uniformly increased, without any tendency to chilliness or partial sweats, the application of cold to the surface is a remedy of great efficacy. The skin may either be sponged with cold water or vinegar and water, or the body may be uncovered, and the windows and doors thrown open, so as to admit a free current of cool air. Cold applied in this manner reduces the feverish heat and restlessness, relaxes the skin, and promotes sleep. When the patient complains of violent pain of the head, or is affected with delirium, after the abstraction of blood by leeches or cups, covering the shaved scalp with a towel kept constantly wet with cold water, will be found a very excellent means for relieving these symptoms.

Nausea and vomiting are often distressing symptoms in bilious fever; the most certain relief will, in most cases, be obtained, after general bleeding has been carried to a proper extent, from the application of leeches or cups over the region of the stomach, and from the use internally of the effervescing mixture, cold toast water, or small portions at a time of iced water, or even powdered ice; where these do not

succeed, a blister should be applied to the epigastrium. All stimulants should be avoided. In some cases, half a grain, or a grain of calomel, given every hour, has been found effectually to suspend the vomiting.

Blisters to the nape of the neck may be necessary, after bleeding, in cases where the head is much affected; and in a later stage, when the patient has sunk into a state of coma, good will frequently be derived from their application to the calves of the legs.

Throughout the entire continuance of the disease, no food whatever should be allowed the patient, and his drinks should be of a perfectly bland nature. The following will be found the best: cold toast, barley or gum water, rendered slightly acid by the addition of lemon or orange juice; a solution of currant jelly in water; tamarind water; weak lemonade; or molasses and water, with a slight addition of lemon-juice. These should be given in small quantities at a time, at short intervals. Great relief will always be obtained, and the inordinate thirst which attends this fever, often greatly mitigated by the patient frequently rinsing his mouth with cold water, or by cleansing his tongue with the pulp of an orange. The apartment of the patient should be kept cool, well ventilated, perfectly clean, and guarded from a glare of light. His body is to be lightly covered with bed-clothes; his linen, if possible, should be frequently changed, and all noise and disturbance guarded against.

After a perfect remission of all the symptoms of bilious fever has been procured, all that is necessary, in most cases, is a cautious attention to the diet of the patient, and a gradual increase of the daily exercise, guarding against fatigue or exposure; but in some instances, a very great degree of debility remains, which may call for a cautious use of the bark or of quinine. But we must recollect, that neither will be proper unless the remission is perfect, and all irritation of the stomach has been completely reduced.

Great restlessness and wakefulness

are very common symptoms of bilious fever. So long as the paroxysms are unabated, bleeding and the other remedies already detailed, are the only means by which quietness and sleep are to be procured; but, towards the decline of the disease, when the febrile excitement is in a great measure reduced, to insure the repose of the patient, we may venture on an anodyne at bed-time; either the Dover's powders, or the sulphate of morphia, may be given in the evening; ten grains of the former, or one-half or one-third of a grain of the latter, dissolved in cinnamon-water, for a dose.

During the period of convalescence from this, as well as from every other fever, great caution is necessary; the patient should not return at once to his ordinary mode of living, as this would endanger a relapse. As soon as the fever is completely subdued, he should be removed from the apartment he occupied during his sickness; be furnished with clean clothing; and as soon as it can be prudently done, be permitted to receive the company of some cheerful, discreet, and esteemed friend. The least fatigue of body or mind must be cautiously guarded against; he must neither read, converse, nor sit up too long. His bowels must be kept regular, either by the use of perfectly ripe and mellow fruit, or by the occasional administration of some gentle laxative. For diet he should at first only be allowed the mildest nutriment; as tapioca, panado, or arrow root; afterwards, he may partake of plain animal jelly in moderation; then of good chocolate, beef-tea, chicken-broth, oysters warmed through, parboiled eggs, and after he has gained a greater degree of strength, the most easily digested meats, simply, but nicely cooked. In regard to exercise, the same remarks are proper as were made when speaking of intermittent fever. As soon as the patient is sufficiently strong, a short journey to some agreeable part of the country will be advantageous.

Congestive form of bilious fever. This form of the disease is marked by considerable general lassitude and de-

bility. The limbs are unable to support the body with their usual firmness; the head is confused and affected with vertigo; sometimes with deep-seated pain, or a sense of heaviness. The eyes are dull, suffused, and often glassy; the face has a peculiarly dirty and pale appearance; the skin is occasionally contracted and clammy, and it is either reduced in temperature, or warm only at particular parts; the pulse is weak and indolent; or oppressed, readily compressible and variable; the voice is slow and drawing, or imperfect and stammering; the countenance is haggard and distressed; the tongue, at first little changed, soon becomes dark brown or black; the lips are dry and livid; the stomach is occasionally irritable; the epigastrium sore to the touch and swelled; the bowels costive; when stools are obtained, they are dark and fetid. The mind is generally confused, and soon sinks into a state of stupor, or is affected with a low species of delirium. The respiration is anxious and labouring, with frequent sighing. When death occurs, it is frequently preceded by purple spots on the skin, and discharges of dark-coloured blood from the nostrils, mouth, or bowels.

This form of fever occasionally attacks with great suddenness, and runs rapidly its course. Under a judicious treatment, the violence of the symptoms may gradually abate, the fever assume a milder and more regular form, and finally, every symptom of the disease entirely disappear.

In the treatment of this form of fever, the lancet, early and judiciously employed, is one of our most efficacious remedies. On the first onset of the disease, a vein should be opened, and the effects of the bleeding upon the pulse carefully watched; if the pulse sinks rapidly, the flow should be at once suspended; but if, on the contrary, the pulse rises, becoming more full and regular in its action, then the bleeding should be continued. In judging of the quantity of blood to be taken, the amount of relief obtained can be our

only guide. Sometimes, on the first opening of the vein, the blood will not flow, but after issuing for some time, drop by drop, frequently the circulation will become more free, and a large and full stream of blood will gush forth with manifest advantage to the patient.

In many cases it will be judicious, particularly if the pulse is much depressed, previously to bleeding, to immerse the patient in a warm bath, and at the same time apply brisk friction with a soft brush or flannel rag over his whole surface; after coming out of the bath, the patient is to be put to bed between blankets, and the effects of bleeding tried. Often an emetic exhibited in the early or forming stage of congestive fever, will be productive of the most decided benefit.

Whenever symptoms are present indicating an oppressed state of the brain or lungs, cups to the head, or to the chest, will be found advantageous, and should not be omitted. Subsequently to their use, general bleeding will be found to act with great certainty in relieving the remaining symptoms of the case.

Cathartics are useful, also, in congestive fever, to unload the bowels of the vitiated contents; to render the circulation of the blood more regular and uniform, and to relieve those organs which are oppressed by a morbid distension of the blood-vessels. Calomel alone, or combined with other purgatives, exhibited in the same manner as in ordinary cases of bilious fever, is the purgative to be preferred. It should be given immediately after the first bleeding, and continued until regular natural discharges from the bowels take place. The action of the purgative given by the mouth may be increased by injections frequently repeated.

With the view of equalizing the circulation and unloading the internal organs, irritants to the surface are almost always beneficial; the warm bath, followed by frictions of the skin, or mustard poultices to the feet, wrists, and over the stomach, and when the lungs are much oppressed, blisters over the

chest should, in the majority of cases, be resorted to, in conjunction with bleeding and purgatives. Stimulating frictions along the spine will occasionally be found useful; they may be made with the volatile liniment, a decoction of cantharides in turpentine, or dry mustard. Internal stimulants should not be resorted to; however much they may seem to be demanded by the apparent prostration of the patient, they never fail to increase the stupor, oppression, and all the more prominent symptoms of the case. A little light nourishment, moderately warm, as panado, gruel, tapioca, or chicken broth, given immediately after blood has been drawn, will, however, often do good. In many cases, after the use of the lancet, and the evacuation of the bowels by purgatives, the good effects of our other remedies will be considerably increased by the use of some diaphoretic; either of the following may be used; opium, two to four grains; ipecacuanha, six to eight grains, and calomel four grains, mixed together, and made into eight powders, one of which is to be taken every three hours; or, camphor, four to eight grains, the same quantity of ipecacuanha and calomel, and one drachm of nitre, for twelve powders; one to be given every three hours. The effects of these will often be increased by the occasional use of the acetate of ammonia, the effervescing mixture, or a weak infusion of snake-root, boneset, or similar diaphoretic drinks, aided by the occasional use of the warm bath.

By the foregoing treatment, early resorted to, and judiciously managed, the skin of the patient will become warmer, softer, and disposed to a gentle perspiration; the pulse will increase in fullness and regularity; the delirium or stupor under which the patient laboured will be removed; the bowels will become more regular, and a state of convalescence will be established.

Under the use of proper remedies, it sometimes happens that the congestive form of bilious fever will become changed, within the first twenty-four

hours, into a mild remittent, or inflammatory fever; the treatment is then precisely the same as in the common forms of bilious fever.

YELLOW FEVER.

It is not our intention to enter into an examination of all the endless discussions and contrary opinions to which the subject of yellow fever has given rise; but rather to present, in a few words, the general conclusions in relation to its origin, causes, nature, and treatment, which the present state of our knowledge in regard to it permits us to draw with some degree of confidence.

Yellow fever is a disease peculiar to warm and tropical climates, and is more prevalent and malignant in proportion to the greater heat of the season. In Philadelphia, the yellow fever has never made its appearance, excepting during those months of the year, the medium temperature of which has been above 75° of Fahrenheit's thermometer; and the average mortality of the disease has always been in proportion as the heat of the season rose above this point. The same general statement is true also of the occurrences of the disease in the other cities of the Union. Heat alone, however, is not sufficient for the production of yellow fever. The disease has never occurred in this, nor in any other country, excepting from a local cause, consisting in the emanations from large collections of filth in a state of decomposition. The dependence of the disease upon a vitiated state of the atmosphere is so notorious, that even they who believe it communicable by contagion, acknowledge that the contagion is inert in a pure state of the atmosphere, and that by domestic cleanliness and ventilation, we are able to extinguish the cause of the fever, after it has been introduced amongst us. Yellow fever is especially liable to occur in hot climates, and during hot weather, in the neighbourhood of extensive marshes, along the low muddy banks of rivers, and in seaport towns and large commercial cities,

where a strict attention to cleanliness and ventilation is neglected. In sea-port towns, and places bordering upon navigable streams, vessels arriving from foreign ports with unclean holds, or damaged cargoes of vegetable substances, become often the cause of yellow fever among those who visit such ships. The crews themselves may remain perfectly healthy, so long as the poisonous effluvium is confined to the hold; but the moment the hatches are unclosed, and the unloading of the cargo commenced, nearly all who come within the influence of the deleterious gas which issues from the vessel, will be attacked with the fever. The circumstance of a poisonous gas being so liable to be generated by heat and filth on shipboard, is one of the fruitful sources of mistake, by which many have been led to believe that the yellow fever is produced by a contagious matter contracted in foreign ports, and subsequently communicated from the sick to the well.

From what has now been said, it will be perceived that we are not believers in the contagious nature of yellow fever. The fact is, that while we can, in every case, point out local causes fully adequate to the production of the disease, in no instance has the fever been satisfactorily traced to any single point of infection. If the first ten or twenty cases which occur among a population be strictly investigated, most of them will be found to have originated independently of each other. Instead of pervading families, or creeping slowly from one neighbourhood to another, as is always the case with contagious diseases, cases of yellow fever will generally be found to occur, at one and the same time, in distant and unconnected spots, and in situations where contagion can not be traced nor suspected. Contagious diseases spread whenever the sick are brought in full contact with the well; but a case of yellow fever has never, or at least very rarely, been known to occur beyond certain limits; hence the well known term of infected district, and

the fact that, by enclosing such district, so as to prevent persons from entering it, the inhabitants being previously removed, a complete stop has been put to the further increase of the disease. Contagious diseases, also, are slow in their progress; the yellow fever spreads rapidly over a certain space, whenever it occurs. The latter will in two or three weeks overrun an extent of city, which the small-pox would not pervade in twice as many months; proving that the one arises from a general cause, and that the other is propagated from one person to another. Yellow fever is confined to particular seasons and climates. To say that a disease is contagious which can not be propagated excepting in certain climates, and in such climates only at certain seasons, and even at such seasons, only during a certain state and temperature of the air, is merely saying in other words, that the disease is not contagious, but depends upon certain local causes. Yellow fever does not spread when the sick are removed from out the impure air where the disease was generated; by breathing this impure air, without contact with the sick, persons, during the prevalence of the disease, are every day attacked; while, on the contrary, without breathing it, no attack will take place. The conclusion is therefore irresistible, that the impure air is the cause of the disease. The medical attendants, nurses, and servants, in well regulated yellow fever hospitals, are not more liable to the disease than individuals who never come in contact with the sick. The disease may be, and often is, produced by certain circumstances, without previous contact or intercourse with those affected with it. Thus it has occurred at sea, on board of vessels coming from a perfectly healthy port; in inland situations, where no intercourse has taken place for many weeks between the inhabitants and persons from any other part, sick or well. It has occurred among the prisoners in a jail, when no person has been admitted affected with the disease, or who has had contact, directly

or indirectly, with persons so affected. The yellow fever is invariably extinguished by the occurrence of cold weather; if it really depended on contagion, in place of ceasing with the setting in of colder weather, it should, like all diseases known to be contagious, become then more prevalent and destructive. Persons labouring under the disease, when removed to a healthy part of the country, do not communicate infection to the well; this is a conclusive argument against its contagious nature. The failure of every means to arrest the progress of yellow fever, by the immediate removal of the sick from among the well, so long as the latter are not removed likewise, is another strong evidence of its non-contagious character.

Yellow fever is attended with a great diversity of symptoms in different cases. In some patients it commences with symptoms which would appear to indicate a perfectly mild disease. In general, it attacks suddenly, with a chill, pain in the head, back and limbs, and occasionally with a nausea or vomiting. The eyes appear red and inflamed, and feel hot and painful, the pupils are sometimes dilated, but more generally contracted. The chill is commonly of very short duration; as it goes off, the pulse becomes, in general, full and quick; the skin very hot and dry; the face flushed; the eyes red and watery. The face has an expression similar to that of a person intoxicated; there is great oppression and tightness at the pit of the stomach, with constant restlessness and frequent sighing; the bowels are costive, the tongue white and coated, or of a bright red colour. The heat of the skin and pains in the head and limbs augment rapidly during the first thirty-six hours, and then gradually decrease, so that at the end of the third day there is either a very great remission of the symptoms, or even complete intermission of the disease, terminating in the recovery of the patient. When an imperfect intermission only takes place, it is in a few hours succeeded by pain and a sense

of burning in the stomach, constant nausea, with efforts to vomit, discharging at first only a little thick green mucus. The pulse is now small, quick and irregular; the stomach sore to the touch; the bowels costive or griped, and the tongue brown and dry. The symptoms rapidly increase, until at length the sense of heat and pain of the stomach cease, and vomiting of a black flaky matter, resembling coffee-grounds, takes place. The patient now often feels quite easy, thinks he is getting better, rises out of bed and walks about, but soon becomes exhausted, and falls into convulsions, or into a state of lethargy, terminating in death. Some patients become comatose, and die without a struggle; in others, death is preceded by the discharge from the mouth, nose and ears, of a dark-coloured blood. The skin of most becomes of a bright yellow before the black vomit occurs. In some instances which terminate fatally, there is no vomiting of black fluid at any period of the disease.

The foregoing constitute the ordinary symptoms of a case of yellow fever. Occasionally, however, other morbid phenomena occur. Thus some cases are attended with carbuncles, buboes, and swelling of the parotid glands. In others, the mental and bodily powers are not at all impaired. Thus persons have been known to die of the disease, who, until the moment of death, have walked about and attended to their ordinary avocations. In some instances, the patients experience the most excruciating pains in different parts of their bodies.

The predisposing and exciting causes of yellow fever are the same as in other fevers: namely, exposure to heat, fatigue, cold, intemperance, fear, anxiety, &c.

In regard to the treatment of yellow fever, this must vary according to the stage of the attack, and the violence of the symptoms by which it is attended. In the early or forming period of the disease, marked by a slight disorder of the stomach, head-ache, pains in the

limbs, lassitude, and a sense of chilliness, much advantage may be derived from the use of the warm bath and brisk frictions of the surface, a moderate bleeding from the arm, and the administration of a large dose of calomel, followed in the course of a few hours by castor oil, the tartrate of potass or soda, or the phosphate of soda. Injections also will be beneficial in procuring a speedy evacuation of the contents of the bowels. At a later period of the disease, when all the prominent symptoms are fully developed, when we have heat of the skin, burning pain and sense of distress at the stomach, with soreness upon pressure over that organ, a vein should be at once opened, and a quantity of blood drawn off, sufficient to reduce decidedly the violence of the fever; immediately after the vein is tied up, if tenderness or uneasiness of the stomach be still present, leeches or cups should be freely applied over the epigastrium. If the first bleeding and leeching should not be found to have fully relieved the patient, they should be repeated with as little delay as possible; for it is only in the early period of the fever that the good effects of the abstraction of blood will be evinced.

After the first bleeding, six or eight grains of calomel, with twelve of cathartic extract, should be administered; and if a copious evacuation from the bowels does not occur in a few hours, the same medicine is to be repeated, and assisted in its operation by castor oil or a purgative injection. The object now is fully and freely to evacuate the bowels. Cold water applied to the surface, during the height of the febrile paroxysm, either by effusion or sponging, should never be neglected. It is among the most powerful means we possess of reducing the violent excitement by which this fever is attended. When the head is much affected, after the application of leeches or cups to the temples or nape of the neck, keeping the head constantly wet with cold water, or the application to the shaved scalp of a bladder partly filled with

powdered ice, will be productive of the most decided benefit.

After the free application of leeches or cups over the stomach, some degree of gastric distress still continuing, a blister to that part will often produce great relief.

The thirst of the patient is to be quenched by small and repeated draughts of some cold beverage: iced water or lemonade, toast or barley water, with the addition of ice, will be found among the best. In cases attended with great irritability of the stomach, we know of no remedy from which more advantage will be obtained than from a tea-spoonful of powdered ice occasionally repeated.

It is to be recollected, that the foregoing remedies are only adapted to the first stage of the disease, and if judiciously and vigorously employed, the danger of the second stage will be avoided, and the most unpleasant symptoms diminished within the first twenty-four hours.

In the second stage of yellow fever, our hopes of arresting the fatal progress of the case are but slender. The most common and unmanageable symptom to be contended with is distressing and almost constant vomiting of a matter which soon assumes the characteristic marks of the fatal black vomit. To suspend or moderate this symptom, a variety of remedies have been put in requisition; no one of which, however, is much to be depended on, after the matter vomited has assumed the black flaky appearance of coffee-grounds. If, however, the vomiting be merely of bile or mucus, and pressure upon the stomach occasions pain, the pulse at the same time being tense, and the patient not greatly prostrated, it will be proper to apply a number of leeches or cups over the epigastrium, and to administer, internally, small doses of calomel, and mucilaginous injections. Immediately after the leech-bites have ceased to bleed, or the cups have been removed, the stomach should be covered with a large blister, and sinapisms applied to the wrists and ankles. When

the vomiting is constant, and no remedy can be retained on the stomach, injecting into the rectum about half an ounce of turpentine in three or four ounces of warm water, at short intervals, until tenesmus is induced, has been known frequently to suspend the vomiting. Injections of opium have likewise been tried, but with little benefit.

In yellow fever, stimulants of all kinds are decidedly injurious in every stage of the disease.

When a perfect intermission has been obtained, the treatment of the patient during the period of convalescence is the same as was pointed out under the head of bilious fever.

TYPHUS FEVER.

When we refer to the medical treatises which load the shelves of our libraries, and consider the disputes, which the nature and mode of treatment of typhus fever have given rise to, we shall very soon be convinced, that the term typhus has been employed in an extremely vague sense; and that it has been applied to fevers of a very different and even opposite character. Even at the present day, general symptoms produced by inflammations of the most decided character, located in some of the internal organs, as well as those depending upon an undue accumulation of the blood, from morbid irritation, in certain parts of the system; and which symptoms have nothing in common, excepting so far as they indicate more or less prostration or oppression of the animal and mental powers of the patient, are all frequently treated as typhus fever. Hence, while by one practitioner we are urged in the treatment of this fever to the use of blood-letting, purgatives, and other antiphlogistic remedies, by another we are solemnly warned to economize and increase the patient's strength by tonics, and the most powerful stimulants. This confusion and contradiction have been the necessary result of the neglect of physicians to trace the symptoms by which diseases are accompanied, to the

local causes seated in the organs, by which they are produced, and their confounding oppression of the animal powers with direct exhaustion.

If it be found by a minute examination of the morbid phenomena of any given case of disease, that inflammation or congestion of an internal organ is present on the one hand, or that the powers of life are actually exhausted to a certain extent on the other, then, whether the disease be named typhus or inflammatory fever, it matters not, the proper course of the skilful physician is to resort at once to such remedies as are calculated to overcome the local disease in the first case, or to rouse the actions of the system to their healthy grade in the second; and he will be guided in the activity and repetition of his remedies by the urgency of the symptoms in either case, in connection with the age, constitution, and former habits of the patient.

Typhus fever, as it ordinarily occurs, may be divided into two distinct stages, the first being marked by the most decided symptoms of increased excitement, either of a part, or of the whole system, and the second by a greater or less depression of all the functions of the body.

The disease generally commences with paleness of the face, and a peculiar dejected and anxious expression of countenance, and a dark or livid appearance around the eyes; there is considerable prostration of strength, and of mental energy, and a sense of chilliness, often alternating with slight flushes of heat. There is loss of appetite, nausea or vomiting; a moist coated tongue; a sense of weight or uneasiness at the stomach; occasional sighing, with quick, hurried breathing; pain, heaviness or giddiness of the head; pain in the loins, and a quick, low and irregular pulse. Sometimes these symptoms continue, with little increase, for many hours, or even days. At length, however, the symptoms of fever develop themselves. In the young and robust, the pulse now becomes full and somewhat tense. The cheeks are flushed and of a dusky red-

ness; the eyes are heavy and the lips parched. The breathing is quick; the skin dry and hot; the tongue thickly coated, and the thirst urgent. There is great distress about the head, and strong tendency to delirium. This stage of excitement continues generally, with little increase or abatement in the symptoms, for some time. The fever and disturbance of the brain being the greatest, however, towards evening; the least in the morning. During this stage, the bowels are generally costive: and, if it continues for any length of time, all the secretions become gradually vitiated; the breath and whole surface of the body exhale a peculiarly nauseous odour, and the tongue, gums and teeth become coated with a dark brown slime.

The stage of excitement, in a shorter or longer period, according to its degree of severity, is finally succeeded by that of collapse. There is now an increased depression of the voluntary powers; the surface becomes relaxed, and diminished in temperature, and often partially covered with a clammy sweat; and the pulse is small, soft and tremulous. The tongue becomes black and dry; the voice faint, the articulation indistinct; the breathing short, feeble, and very anxious. The mental functions are greatly disordered; the patient being affected with great restlessness and fear, or with low muttering delirium, or he lies in a state of stupor from which he can only be momentarily roused. The countenance appears sunk and inanimate. There is often an irritating cough, coming on, as it were, in convulsive paroxysms. During the state of collapse, the patient is disposed to lie on his back, with his feet drawn up, and there is a great tendency in his body to slide downwards towards the foot of the bed. The parts upon which the weight of the body is principally sustained, as the hips, shoulders, &c., become often ulcerated or gangrenous; which increases the unfavourable character of the case. As the disease progresses, all the symptoms of prostration increase. A con-

vulsive motion of the tendons of the wrist is observed; the patient can no longer be roused from his stupor; hiccup, involuntary discharges from the bowels, and a cadaverous smell of the body, generally occur towards the close of the disease.

In the course of the more violent cases of typhus, the urine often becomes brown or blackish, and of a most offensive odour; a dark-coloured slimy matter is occasionally thrown up from the stomach, and the skin is sometimes covered with small purple spots, like flea-bites, or with broad spots of a dark red colour, denominated *petechiæ*. In other instances, a discharge of dark-coloured blood takes place from the gums, nose, stomach or bowels; often from all these parts at once.

A favourable opinion in regard to the result of typhus fever, is to be drawn from the mildness of the symptoms, and their being complicated with no violent affection of the brain or other internal organ; from the gradual subsidence of the more prominent symptoms; from the occurrence of natural, undisturbed sleep; from the pulse becoming more firm and regular; the countenance less distressed; the mind more calm; the skin of its natural feel and temperature; the bowels free and regular, and a gradual return of the appetite for food.

Death, in violent cases, is generally preceded by excessive prostration; cold, clammy sweats; involuntary discharges from the bowels, and a discharge of dark-coloured blood from the nose, mouth and anus; or by convulsions.

Typhus fever is emphatically the disease of poverty and low life. It is not, however, confined solely to the hut of the poor and miserable, but is also the frequent scourge of jails, almshouses, hospitals, barracks, &c., and it is occasionally met with on board of ships crowded with passengers or transports. All that is necessary for its production seems to be a number of individuals, covered or surrounded by the accumulated filth of their own persons, clothing and dwellings, crowded

together in small, ill-ventilated apartments; particularly if, at the same time, their systems are disposed to the action of the enpoisoned air by which they are surrounded, in consequence of previous disease, intemperance, debauchery, want of, or improper nourishment, the influence of cold, or of anxiety, grief, fear, guilt, remorse, or the other depressing passions.

Any of the ordinary causes of fever may, however, give rise to typhus. For this form of fever is frequently dependent upon the nature of the constitution in which it is produced, and hence the same causes which, in a full, robust and plethoric habit, would produce violent inflammatory disease, in which the brain and nervous system shall be little implicated, will, in an exhausted, broken down, and irritable system, produce a fever marked by typhoid symptoms.

Typhus fever prevails most commonly in winter. It is at this season that the poor suffer the greatest amount of privation, and from the influence of hunger and cold, their systems are the most predisposed to disease, while, often, numerous individuals crowd together in one small apartment, often in damp cellars, from which the external air is as much as possible excluded, and where every species of filth is permitted to accumulate.

The impure air productive of typhus, extends its deleterious influence but a short distance beyond the place in which it has been produced. In a clean, well aired room, of moderate size, the poison is so much diluted with fresh air, as very rarely to produce disease, even in nurses exposed to all the putrid miasms from the breath, perspiration, and discharges of a patient; whereas, in the close, dirty, and small apartments of the poor, the whole family are generally infected. There are some very strong facts upon record, which would seem to prove, that the poisonous effluvia producing typhus, may be absorbed, and retained for a considerable time, by the walls, furniture, and flooring of

rooms, so as to produce the disease in those who subsequently inhabit such rooms, or make use of the furniture or bedding; providing, however, the same have not been previously thoroughly cleansed, and exposed to the external air.

Is typhus fever contagious? or, in other words, can an individual labouring under typhus fever, when placed in contact with an individual in health, communicate the same disease to the latter? This is an important question, which remains still undecided. For ourselves, we should say, from all the facts that have been established in regard to the production and prevalence of typhus fever, that it is in no degree contagious; that it is incapable of being communicated, like small-pox, from the sick to the well; and for the following reasons, namely:

1st. The disease, it is acknowledged, is capable of being produced by a confined atmosphere, contaminated with the effluvia arising from domestic filth, or issuing from living human bodies, in which due attention has not been paid to personal cleanliness; and this, without any connexion with typhus patients, or the apartments, bedding, or clothing which they have occupied or worn. 2dly. Cleanliness and free ventilation, it is acknowledged, under nearly all circumstances, prevent the origin of the disease, or even in an apartment occupied by a patient labouring under typhus, will prevent its propagation. 3dly. So intimately, indeed, is the production of the disease connected with an impure and stagnant atmosphere, that it is confessed by believers in the contagion of typhus, the contagion is always rendered inert by personal cleanliness, and a pure and freely circulating air; that it can produce the disease only in a filthy and confined atmosphere. Every medical fact, say the contagionists, irresistibly proves that impurities of the air constitute the fuel of this disease; and from the very admission of these gentlemen, we conclude, that those impurities con-

stitute the flame by which the disease is enkindled, as well as the fuel by which it is continued.

The susceptibility to typhus fever varies considerably in different individuals, under all circumstances. Thus we find, that many persons, upon an equal exposure to its causes with others, are but slightly affected, while others entirely escape. It is a curious fact, also, that a constant and gradual exposure to the influence of an impure atmosphere, though it may depress considerably the powers of life, nevertheless will often be borne without any decided disease being induced. Hence, persons in jails, breathing constantly an impure and stagnant atmosphere, are far less liable to typhus fever, than strangers who breathe the same air but momentarily.

In the treatment of typhus, whenever it is possible, the removal of the patient to a large, freely ventilated and clean apartment, and stripping him of his filthy clothing, should be the first things attended to. His skin should next be thoroughly cleansed by immersion in a warm bath, and the use of soap and a soft brush. By this alone, the most beneficial change will almost always be produced in the symptoms of the disease. After coming out of the bath, the patient should be wiped perfectly dry with warmed flannels, and put to bed between blankets.

In the early period or forming stage of typhus fever, an emetic will often be found advantageous. A dose of tartar emetic or of ipecacuanha may be administered, and its operation promoted by giving the patient large quantities of weak chamomile tea or warm water. After the patient has rested from the effects of the emetic, a dose of calomel and jalap, ten grains of each, should be administered, and followed by the senna-tea or by purgative injections. The purgative should be again repeated, after a short interval, provided the first dose has not the effect of producing full and free evacuations from the bowels. When these are obtained, they relieve the oppression of the stomach;

render the tongue clean and soft; mitigate the thirst and restlessness, and the morbid heat of the surface, and prevent that formidable oppression of the brain and nervous system upon which the symptoms of collapse, which attend the second stage of the disease, depend. The same rules that were laid down in regard to the use of purgatives in bilious fever, will equally apply in the disease under consideration. Even at a later period of the disease than that referred to above, purgatives are often beneficial. Thus, when in the forming stage, the bowels have been neglected, a very considerable accumulation of vitiated feces often takes place in the bowels in the course of the disease, accompanied with great prostration of strength, flushed face, suffused eyes, delirium or stupor, difficult breathing, and quick, irregular pulse: under these circumstances, while general bleeding is inadmissible, the most agreeable change will be often produced by the operation of a full dose of some brisk purgative, as calomel and jalap, aided by purgative injections.

In simple typhus, where the pulse is not much increased in activity and strength, and is readily compressed, and accompanied with no symptoms of considerable local inflammation, or congestion, bleeding may in general be dispensed with, or only employed in those cases where the occurrence of local pain, tenderness, or a sense of fullness indicates its necessity. In these latter cases, leeches or cups should always be applied without delay to the part affected. When judiciously employed, they will greatly shorten the duration, and moderate the danger of the attack, by preventing the occurrence of a serious affection of some internal organ.

In the more violent attacks of typhus fever, bleeding from the arm will, in general, be demanded. Whenever then the patient is young and robust, the attack recent, the pulse full and quick, the skin hot, the face flushed; especially if these symptoms be accompanied with much pain of the head, back,

chest, or stomach; if delirium be present, or great difficulty of breathing, a vein in the arm is to be opened, and as much blood drawn off as will produce an abatement of all the violent symptoms, or until fainting is induced. Should local pain, difficulty of respiration, or delirium remain to any extent after the first general bleeding, the free application of cups to the parts affected should be resorted to, and they should be immediately followed by the application of a large blister as near to the affected organ as possible.

By the early removal of typhus patients from a contaminated atmosphere, and the immediate, but judicious use of general and local blood-letting, aided by brisk purging, and the warm bath and frictions of the skin, in a majority of instances the fatal prostration of the second stage of the disease will be prevented, and the life of the patient preserved.

Whenever the symptoms of excitement run high, the patient feeling hot and restless, and the skin being universally and steadily above the natural temperature, and at the same time perfectly dry, no remedy has been found to act with so much promptitude, and to be productive of greater benefit, than the application of cold water to the surface of the body. It may be used in the form of affusion, ablution, or sponging; affusion is, however, the most effectual. The patient being stripped naked, a bucket of cold water, of the temperature of from 40 to 60 degrees, is to be dashed over his surface, and repeated two or three times, after an interval of a few minutes, until the skin becomes comfortably cool, but not chilly or contracted. The patient is then to be wiped perfectly dry, and covered up in bed; after which a bowl of warm tea or thin gruel is to be given him. When the debility of the patient is considerable, or the disease has been of long continuance, the water may be heated to about 75 or 87 degrees. Washing or sponging the body with cold water, or vinegar and water, is a milder, but less effectual mode of em-

ploying the remedy. It may be resorted to in the advanced stage of the fever, when the patient is much debilitated, or when, from any cause, we are prevented from resorting to affusion. It can only be employed, however, during the height of the febrile paroxysm, when the heat of the skin is steadily above the natural temperature, and no tendency to perspiration is present. When the head is much affected, cold should be applied to the shaved scalp in the same manner as was directed in bilious fever.

After the foregoing remedies have been resorted to, and repeated according to circumstances, the skin still continuing hot and dry, diaphoretic remedies will very generally be productive of beneficial effects. We would remark, however, that early bleeding, a complete evacuation of the bowels, and the judicious employment of cold affusion or sponging, followed by some tepid diluent, as weak tea, lemonade, or barley water, will very generally render the use of diaphoretics unnecessary. When, however, diaphoretics are considered to be proper, the effervescing mixture, or the citrate or acetate of ammonia, may be given at short intervals, or one of the following powders every three hours: powdered nitre, two scruples; camphor, eight grains; powdered ipecacuanha, eight grains; calomel, ten to twelve grains; to be mixed together, and divided into eight powders. In cases of typhus, complicated with an affection of the chest, subsequently to blood-letting; or when, after proper depletion, the skin continues hot and parched, and the tongue dry, an infusion of eupatorium or serpentaria, will be found a valuable diaphoretic. Its efficacy may be increased by the occasional use of a warm foot-bath, and by the administration of one of the following powders every third hour: powdered nitre, one drachm; opium, six grains; ipecacuanha, twelve grains; calomel, twelve grains; to be mixed together, and divided into twelve powders.

So long as typhus fever is accom-

panied with symptoms of increased excitement, or with inflammation of the brain, lungs, or stomach, the diet of the patient should be of the most simple kind, and taken in small quantities at a time. Every species of solid animal food is to be prohibited; barley or toast water, thin gruel or panado, will, in such cases, be sufficient; with weak balm tea, lemonade, or small draughts of cold water for drink. There is not a more injurious mistake, than to suppose that the strength of an individual, labouring under fever, is to be supported by a full, nourishing diet, or by the use of wine.

The free ventilation of the sick chamber, by the admission into it of pure cool air, in such a manner that the patient shall not be exposed to a direct current, is a matter of the very first importance. The covering of the bed should be light; the person and clothing of the patient, as well as the chamber, must be kept scrupulously clean. Quietness is to be preserved around the patient, and all unnecessary attendants and visitors excluded.

By the foregoing course of treatment, early commenced with, and rigorously pursued, the second period of the disease, or that of collapse, may, in the majority of cases, be prevented. When, however, the disease runs on in despite of our remedies, and the pulse begins to sink, the general powers of the body become exhausted; the heat of the skin greatly diminished; the tongue, teeth and gums thickly incrustated with a black, tenacious slime, and great dullness of intellect, low muttering delirium or complete stupor are present, a somewhat different mode of treatment will be demanded; the bowels must still, however, be kept in a laxative state by the administration of castor oil, or small doses of calomel, aided in their operation by laxative injections. Cups to the temples, forehead and nape of the neck, followed by cold applications to the shaved scalp, and mustard poultices to the extremities, will almost always be demanded, if there is much disorder or oppression of the brain. In

these cases, yeast, in table-spoonful doses, repeated at short intervals; or half a drachm to a drachm of turpentine, mixed with the same quantity of castor oil and half an ounce of mucilage of gum arabic, will often be found beneficial; or these remedies may be administered by way of injection.

When the brain is but little affected, the volatile alkali, either alone, or combined with camphor, may be resorted to; the following prescription will be found the best: subcarbonate of ammonia, fifty grains; gum arabic and sugar, of each, sixty grains; cinnamon water, three ounces; dose, a table-spoonful every two or three hours; or, carbonate of ammonia, forty grains; camphor, eight grains; sugar, one drachm; to be mixed together, and divided into eight powders; one of which is to be given every three hours. The use of either of these prescriptions, if at the same time the warm or vapour bath be occasionally resorted to, followed by a draught of an infusion of serpentaria, will be found very generally to render the pulse more full and regular, the skin moist, and of an equable temperature, the tongue clean, and to reduce the restlessness and distress under which, at this period, the patient commonly labours.

At a still later period of the disease, the use of wine whey, or of wine by itself, may be required. In its administration, however, great caution is necessary. At first it should be given sparingly, and its effects carefully watched; if the pulse becomes slower and fuller, the tongue softer and cleaner, the skin moist and of an agreeable warmth, its use may be continued; but if the skin becomes more hot and parched, the tongue drier, the pulse quicker, smaller and more frequent; and especially if any symptoms of stupor come on, the further use of the wine is to be absolutely prohibited. At first, the wine should be given diluted with water, in the form of whey, or mixed with gruel or panado. In many cases, sound bottled porter, ale or cider, may, with great propriety, be

substituted for wine. As a general rule, the use of distilled spirits, of every kind, is improper in typhus fever; they produce an excessive stimulation, the direct as well as the indirect effects of which are to increase, rather than remove, the symptoms of exhaustion under which the patient labours.

When the skin is cold and clammy, and the pulse small and weak, in conjunction with the use of wine and ammonia internally, warmth to the surface is often decidedly beneficial. Heated bricks, bottles filled with hot water, or bags of heated bran or chaff, may be applied to the feet, groins, armpits, and along the sides of the body; or we may employ stimulating frictions to the surface, of cayenne pepper and hot brandy, a decoction of turpentine and cantharides, or dry mustard.

If by these means the symptoms of exhaustion are removed, and a state of convalescence ensues, the use of the bark or quinine, with a light nourishing diet, will in general confirm the cure.

Throughout the whole of the second stage of typhus, the strictest attention must be paid to the cleanliness, quiet and ventilation of the patient's chamber. The temperature of the room should be moderate, but never allowed to fall so low as to endanger a sensation of chilliness in the patient. The same diet may be given as in the former stage, and as drink the mineral acids, largely diluted with water.

The same rules are to be observed during convalescence from typhus as were laid down in the article on bilious fever. Too early a resort to animal food, should, in particular, be guarded against. With light, simple nourishment, and pure air, the sleep and repose which are so apt to ensue after the fever is completely removed, will, in general, restore the patient's strength in a very short time, without the use of a full diet, or any thing that shall risk a reproduction of the dangerous disease, from which he has so recently recovered.

INFLAMMATION OF THE BRAIN.

The substance of the brain itself may be the seat of inflammation, or the inflammation may attack one or other of its membranes; and the disease will be accompanied with somewhat different symptoms, according as it affects one or other of those parts. In practice, however, this slight modification of the morbid phenomena is of little consequence, the general symptoms and treatment being the same, whether it be the brain itself or its envelopes that are affected.

The symptoms of acute inflammation of the brain, are pain, more or less intense, in different parts of the head, ordinarily fixed about the forehead and occiput. These pains are of a darting kind when the inflammation occupies the membranes, but dull and deep-seated, when it affects the substance of the brain. These pains are generally accompanied with heat and dryness of the skin, redness of the face and eyes, pulsation of the carotid arteries, a quick, frequent and hard pulse, and extreme thirst. If the inflammation of the brain increase, there is in general delirium, which often becomes furious; terrifying dreams; great acuteness of the eye and ear to light and sound; a constantly contracted state of the pupils; a fixed, dull, or ferocious expression of countenance; accelerated and laborious respiration; a red, dry, and pointed tongue; deep-coloured and scanty urine; constant agitation of the body; convulsive movements of the limbs, or of the entire frame, and a spasmodic twitching of the tendons. The bowels are in general obstinately costive, and the patient exhibits often great moroseness, impatience of contradiction or restraint, and, in many cases, raves incessantly.

After continuing for a longer or shorter period, the foregoing symptoms are succeeded by a stupor, more or less profound; all the external senses are benumbed; the limbs are perfectly relaxed; the pupils of the eyes are di-

lated; the pulse is small, irregular, or intermittent; the respiration is deep, slow, and often stertorous; and the skin is cold and clammy. This state of stupor increases rapidly, and finally terminates in death.

Inflammation of the brain may be produced by injuries inflicted upon the head, by falls or blows; by exposure to the direct rays of the sun; by violent exercise; long-continued and intense study; cold; fatigue; intemperance in eating and drinking; indigestible or poisonous substances taken into the stomach; the suppression of habitual discharges, or violent paroxysms of anger. Inflammation may also extend to the brain from the ear, the eyes, the internal cavities of the nose, or from the scalp. The brain may also become inflamed sympathetically from disease of the stomach, or from inflammations of the joints and skin.

For the cure of inflammation of the brain, the most prompt and energetic measures are demanded. The patient should be kept as much as possible in an upright position, or, at least, with the head considerably elevated. As soon as the peculiar symptoms of the disease present themselves, a large bleeding should be resorted to, proportioned to the violence of the inflammation, and the age, constitution, and general strength of the patient. In this, as well as every other case of extensive acute disease, it is to be recollected that one copious bleeding, in the commencement, is much more effectual than several small ones, even though repeated at short intervals. Immediately after the arm is tied up, the scalp should be shaved, and if the pain of the head, intolerance of light, &c., be not entirely removed, a sufficient number of leeches or cups should be applied to the forehead, temples and occiput, or over the surface of the scalp. In regard to the repetition of the blood-letting, general and local, a circumstance not unfrequently demanded, this must of course be determined by the effects of the preceding operations, and the subsequent symptoms of each case.

If it be found that the disease of the brain is not entirely subdued, or it has in any degree returned, a repetition of blood-letting, particularly by cups or leeches, applied to the temples or scalp, is indispensable.

Another important means of evacuation in this disease, is by purging. The more active remedies should be employed, and their full and speedy operation solicited by following them at short intervals by a solution of the neutral salts, the infusion of senna, or purgative injections. Calomel and jalap, of each, ten grains; or calomel, ten grains; jalap, eight grains, and gamboge, three grains; or gamboge, two grains; soap and aloes, of each, five grains, may be given as a dose to an adult, and repeated in three hours, if necessary.

The early application of cold to the scalp, as directed in bilious fever, will often produce a most decided and beneficial effect. After depletion by the lancet and leeches, or cups, has been carried as far as is thought advisable, if considerable heat of the skin and activity of the circulation still remain, antimonials may be administered. We may either give a table-spoonful of the following mixture every two hours; sulphate of magnesia, one ounce; nitrate of potass, two drachms; tartar emetic, two grains; and boiling water, twelve ounces; or one of the following powders, at the same intervals: powdered nitre, one drachm; tartar emetic, one grain; for eight powders.

Blisters, employed subsequently to full evacuations by the lancet and by purges, are a remedy which will have a powerful influence in removing the remaining symptoms of the disease. They should be applied to the nape of the neck or between the shoulders.

As a means of determining the blood from the brain, after bleeding, stimulating foot-baths, made by an infusion of mustard in hot water, or mustard poultices to the ankles, should not be neglected.

During the entire continuance of inflammation of the brain, no food what-

ever should be allowed the patient; toast and water, rendered slightly sour by lemon-juice, or very thin barley-water, may be given in small quantities at a time, to quench thirst.

The chamber of the patient should be kept perfectly cool and freely ventilated. The most perfect silence in and around the patient's apartment, is indispensable; and his aversion from light will point out the propriety of carefully excluding it. During convalescence, the same rules are to be observed as were pointed out when treating of bilious fever.

INFLAMMATION OF THE EYES.

All the parts and appendages of the eye are subject to inflammation, a disease not only attended with present pain and inconvenience, but which may lay the foundation of such derangements of the structure of the eye, as will lead to the irreparable injury, or entire loss, of vision. Inflammation of the eye is divided into the acute and chronic; and it is of consequence to make this distinction, as each kind requires a different treatment.

Acute inflammation of the eye, or acute ophthalmia, is characterized by the whole or part of the white of the eye being covered with blood-vessels; or becoming what is commonly called *blood-shot*: the lining of the eye-lids participates in the same appearance. There is, at the same time, a sensation of great heat, uneasiness and shooting pains, and as if sand or dirt had got into the eyes. The presence of light is intolerable; hence, the patient instinctively keeps the eye-lids closed. There is a very copious flow of tears. Sometimes the constitution is affected, and the patient has feverish symptoms, of a more or less violent grade; but this rarely happens, unless he is very irritable, or the disease is very violent.

Acute inflammation of the eyes is produced by exposure to cold piercing winds, or sudden changes of temperature, by a blow upon or near the eyeball, by smoke or irritating vapours, dust, sand, or moats getting into the

eye, by exposure to light, very bright or long-continued, looking much at small objects, reading by candle-light, and by spontaneous determination of blood to the head, or that excitement which arises from habitual intemperance.

It is proper in all cases of inflammation of the eyes, to be very sure that there is no foreign body irritating the eye; and to examine the eye for this purpose, is the first thing the surgeon ought to do. He is to take blood from the arm, if there is much fever present; or if the inflammation appears more local, a number of leeches are to be applied in the neighbourhood of the eye, or the temporal artery is to be opened. The eyes are to be frequently bathed with tepid milk and water; and the bowels are to be opened with saline purgatives. A blister behind the ear, or on the nape of the neck, is a very excellent remedy, after bleeding; and the patient may also take with advantage, a table-spoonful of the following solution, every three hours: sulphate of magnesia, one ounce; tartar emetic, two grains; water, eight ounces. If the inflammation be not very obstinate, and if there be no peculiar irritability of constitution, these measures will commonly put an end to acute inflammation of the eyes, in a few days; in other instances, however, the pain and intolerance of light, the watery discharge, and other uneasy symptoms are abated, though the eye still looks red and inflamed. The disease has now passed into the chronic stage, and the bathing with warm water must be exchanged for applications of an astringent nature, and such as are fitted to strengthen the parts. A useful application of this kind, is a solution of twelve grains of sulphate of zinc or white vitriol, in three ounces of rose-water and the same quantity of spring-water; the eye is to be frequently washed with this, taking care that a portion of the wash gets inside the lids.

Though inflammation of the eye may appear a complaint very easily managed, we are too often completely baff-

fled in its cure, and the patient suffers a very long time from the disease, even under the best-directed treatment. In this chronic stage of the complaint, we have not only inflammation and redness of the ball of the eye, but a raw and inflamed state of the eye-lids. This chronic ailment is very often the accompaniment of an unhealthy constitution, and general as well as local remedies are to be applied for its removal. In many cases, leeches will still be required, with saline purgatives, and blisters to the temples or behind the ears. Astringent, or even stimulating washes, are demanded, as local applications. Thus, a weak solution of the sulphate of copper has often been found advantageous; or a small portion of an ointment composed of five grains of red precipitate to one drachm of fine lard, very intimately mixed, may be put at the inner corner of the eye, particularly at bed-time, that the motion of the lid may diffuse it over the ball. Chronic inflammation of the eyes is peculiarly apt to be aggravated by exposure to cold or any irregularity. In conjunction with the local treatment, gentle tonics and a light nourishing diet, are to be given, to strengthen the constitution.

There is a kind of inflammation of the eyes, in which the severity of the symptoms is very great indeed, where light is absolutely intolerable, where there is the feeling of great tightness in the ball of the eye, and severe pains in the head. Such severity of symptoms demands the most active and prompt employment of the means for reducing inflammation. Large general bleedings are to be directed, with active purges, and scarifications of the inner surface of the eye-lids, and even cutting across the distended vessels of the ball itself. Blisters are in this case also of service, and emetics are thought to have much efficacy in diminishing the inflammation. Minute doses of tartar emetic dissolved in water, or added to a solution of Epsom salt, and given at short intervals, will always be found advantageous. Dropping into the eye

the vinous tincture of opium, is here also strongly recommended, but it is useful only when the violent acute stage is entirely over.

Chronic inflammation of the Eye. In some constitutions, particularly the scrofulous, there is a continual redness of the eye-lids, and frequent tendency to inflammation of the eye itself. In this case, we are to endeavour to strengthen the system by bark, exercise, pure air, and a mild but nourishing diet, to avoid exposure to damp and cold, to use an ointment to the eye at bed-time composed of the nitrate or the red precipitate of mercury; and when, by any accidental cause, it is changed into the acute, we are to resort to bleeding and the other remedies already mentioned. In most cases, leeches to the eyes, blisters behind the ears, and mercurial purgatives, especially a pill composed of five grains of blue mass, one of ipecacuanha, and one of aloes, night and morning, are required.

Purulent inflammation of the eyes. This occurs very frequently in young infants; and, if not treated with the utmost skill and care, is apt to end in a projecting and untransparent state of the cornea, producing total blindness. There is a very remarkable and abundant discharge of thick yellow matter from the eye-lids, the lining membrane of which is thickened, appears wrinkled, and presents a soft red surface; in a very short time the eye-lids become closed, and can be opened only with the greatest difficulty; the matter becoming in consequence collected within them causes them to bulge out, and always by its retention increases the pain and suffering of the patient, and often causes a destruction of the sight. Should the surgeon be called in early enough, he must direct blood to be taken from the neighbourhood of the eye by a number of leeches, the application of which must be repeated at short intervals, until the violence of the inflammation is sensibly abated. He must also use an astringent wash, which he is to apply himself with a syringe, previously washing out the

collected thick matter by the same instrument, filled with tepid water. This operation should not be trusted to the attendants, as by them it will seldom be effectually performed, and the disease is so rapid and malignant that by the least neglect the unfortunate little patient runs the risk of total blindness, from the cornea becoming quite opaque. At the same time these local means are diligently pursued, the bowels should be freely evacuated by small doses of calomel, combined with rhubarb, frequently repeated. In the more violent cases, blisters behind the ears or to the temples will be found beneficial. This treatment, when diligently put in practice, generally succeeds; the matter diminishes in quantity, and the eye-lids put on a more natural and healthy appearance. We then gradually discontinue our washing, taking care not to expose the eyes too soon to a strong light. This kind of ophthalmia is what the common people mean when they say, the *gum* has got into the eyes.

Another kind of purulent inflammation of the eyes, affecting adults, has of late years attracted much attention. It is remarkable for its spreading in ships, regiments, and other assemblages of persons. It varies in its continuance and severity, from the acute but rapid kind, which is over in forty-eight hours, to the long protracted kind, which, after harassing the patient for years, leaves him in total blindness. The treatment does not differ from that of the other kinds already mentioned. Tepid washes at first, astringent ones afterwards, low diet, and copious local or general bleeding, when the fever is high, followed by active purges, and blisters in the neighbourhood of the eyes, and scarifications according to the judgment of the surgeon, constitute the mode of treatment.

Inflammation of the iris. Inflammation of the deeply seated parts of the eye, and especially of the iris, is accompanied with violent pain, intolerance of light, head-ache, and all the more violent symptoms of inflammation. It appears in company with rheu-

matism of the chronic form, sometimes with the gout; with the constitutional signs of syphilis, and during or following the action of mercury upon the system. The conjoined operation of mercury and syphilis is one of the most frequent causes of iritic inflammation; but it occurs also in persons who have not been using mercury; and who are free from all syphilitic taint.

Besides the usual methods of diminishing inflammation of the eye by bleeding, general and topical, and the other parts of the antiphlogistic plan; and at the proper period dropping into the eye a little of the wine of opium, the best way of arresting the inflammation is, rapidly to place the system under the full effects of mercury. This is to be done by giving from four to six grains of calomel daily, two grains at a time, or combining it with the fourth of a grain of opium, to prevent its running off by the bowels; friction with mercurial ointment is to be diligently employed at the same time. It will appear strange, that the same agent which frequently contributes to the production of the disease should also be the most certain and effectual means of cure; but of the fact there can be no question; and the profession are highly indebted to Dr. Farre for this most important improvement in the treatment of this species of inflammation. Mr. Saunders of London, in 1805, was accidentally led to the employment of mercury in one case, and with success; but as he considered the patient to be syphilitic, mercury does not seem to have been used by him in his subsequent cases. The use of mercury in simple, as well as in syphilitic iritic inflammation, was first recommended in England by Dr. Farre. But while we acknowledge our obligations to Dr. Farre, we must perform an act of justice to the oculists of Vienna, who certainly anticipated him in this improvement. In 1800, professor Beer, of Vienna, pointed out the importance of mercury in various inflammation of the eye, unconnected with syphilis. In phlegmon of the eye, that dread ul in-

inflammation, which, when not corrected in time, with the most violent intolerable pain, converts the whole eye into pus, so that only a small shapeless lump remains in the orbit, no remedy so quickly and certainly checks the suppuration as mercurial friction. Even when fever is present, this remedy can be used without any fear. When, in those inflammations of the eye which follow small-pox, an abscess or staphylocoma begins to form on the cornea, the friction with mercurial ointment is so sure a remedy, that under its use, opacity or destruction of the cornea will very rarely occur.

INFLAMMATION OF THE TONSILS.

This disease, commonly called inflammatory sore throat, or quinsy, is one of very frequent occurrence in young persons, during the spring and early winter months. It may occur at any season of the year, from the application of cold to the neck or throat, in consequence of the injudicious removal of the usual coverings worn over those parts, or from exposure to the night air when the body is fatigued or in a state of perspiration. In many individuals, also, the disease is quickly induced by cold or dampness applied to the feet.

Inflammation of the tonsils usually commences with a sense of chilliness, alternating with flushes of heat; the tonsils and back part of the throat soon become red, swollen and painful. The pain is acute and darting, and usually extends to one or both ears. It is increased by every attempt to swallow, and by external pressure. These local symptoms are generally attended with some degree of fever. Swallowing is greatly impeded as the disease increases, and speaking, and even breathing, are rendered difficult. In a few cases, small white spots are to be observed upon the tonsils. When the inflammation is very violent, the eyes become red, swollen and watery; the cheeks flushed and turgid, and the patient is unable to open his mouth. Externally, large tumours can be felt, or

even sometimes seen by the eye, on each side the jaws. The sense of suffocation is intolerable, and the patient is obliged to be supported in an erect posture in order that his breathing may not be entirely suspended.

The inflammation is at first greatest in one tonsil, but subsequently extends to both. When it occurs repeatedly in the same individual, within a short space of time, a peculiar susceptibility to the disease is established, so that it is produced by the slightest causes.

The inflammation may either rapidly decline, or produce suppuration, and an abscess in the throat; or, remaining a long time in a chronic state, cause an enlarged and hardened condition of the tonsils, by which sometimes breathing, swallowing and speech are so much affected as to require the removal of the organs by a surgical operation.

The cure of this disease requires the usual remedies for inflammation. At the very commencement of the attack, before the inflammation of the throat is of any considerable extent, an emetic of tartarized antimony will frequently be found to remove it at once. When, however, the disease has run some time, or is from the first of a violent grade, bleeding from the arm, followed by leeches to the throat, will be demanded. The bleeding should be succeeded by a dose of sulphate of soda or magnesia, or when the act of swallowing is attended with great difficulty, a table-spoonful of the following mixture may be taken every two or three hours. Sulphate of magnesia, one ounce; nitre, one drachm; tartar emetic, two grains, and boiling water, twelve ounces. This, with the occasional use of the warm foot-bath, will have the effect of opening the bowels, producing a gentle perspiration, and reducing the inflammation.

By many writers, a variety of acid and astringent gargles have been proposed in this disease, but there are few cases in which the patient can make use of gargles in such a manner as to derive much advantage from them.

In general, more benefit will be derived from inhaling the vapour of warm water or vinegar, which may readily be directed to the throat by means of a common funnel. When the tonsils are very considerably swollen, great advantage will often be obtained by freely scarifying them with a lancet.

Should the inflammation not be reduced by these means, a large blister is to be applied around the throat, or what will often be more effectual, the throat may be enveloped for five or ten minutes with a cloth wet with spirits of turpentine. At the same time, the mixture directed above, with the inhalations, should be continued.

The use of volatile and other liniments to the throat, which is so frequently resorted to in this disease, is productive of little good, and in some cases is even injurious.

During the disease, the patient should be allowed nothing in the form of food or drink, excepting barley, toast, or gum water, rendered slightly acid by the addition of lemon-juice.

If the swellings in the throat appear evidently inclined to suppurate, this should be encouraged by the frequent inhalation of the steam of hot water, and in certain instances, by poultices externally. The moment they become soft, they should be punctured with a lancet, to allow of a discharge of the contained matter. After this, a gargle of sage tea, alum and honey, several times in the course of the day, will complete the cure.

The great liability to a recurrence of the disease, will point out the importance of the patient being on his guard for a considerable time subsequently to his recovery, against exposure to cold or damp, to sudden transitions of temperature, and the like exciting causes.

INFLAMMATION OF THE LARYNX.

Inflammation of the larynx, or upper part of the windpipe, commences with the usual symptoms of fever. The voice very quickly becomes hoarse and indistinct, sometimes entirely ex-

tinct; the breathing laborious, with a painful sense of constriction in the throat; on examining the back part of the throat, we now find that every portion of it is of an intense, dark red colour, and considerably swollen. The face soon becomes red and bloated, the eyes red, swollen and often protuberant, as in cases of strangulation. The pulse is very quick and frequent, and the tongue coated. Every attempt to swallow is attended with intolerable distress; the muscles of the throat and chest being thrown into violent spasmodic action, threatening the patient with instant suffocation, and causing him to cry out for the admission of more air into the room.

Inflammation of the larynx is extremely acute and rapid in its progress, often destroying life, by suffocation, in a day or two, or even in less time, unless attacked in its very commencement by the most active remedies.

In many of its symptoms it bears a close resemblance to croup, and to distinguish them from each other is not always very easy. This, however, is not of much importance, as the treatment of the two diseases does not differ in any important particular. The causes of laryngeal inflammation are the same as those of inflammation of the tonsils.

In the treatment of this truly formidable disease, the great object of the physician should be to reduce the local inflammation with the least possible delay. To effect this, an early resort to blood-letting will be demanded. The quantity of blood taken away at the first bleeding should be copious—sufficient, at least, to relieve all the prominent symptoms of the case. In violent cases, the arm should not be tied up until paleness of the face, and other symptoms of approaching faintness, are produced. If the bleeding from the arm has not completely reduced the inflammation of the throat, it should be followed in a short time by the free application of leeches about the neck. At the same time, the bowels are to be thoroughly purged by large doses of

calomel and jalap, aided in their operation by purgative injections.

It is upon the active employment of the above remedies from the very onset of the disease, alone, that we are to expect to arrest the progress of the inflammation, and save the life of the patient. Any delay or timidity in their use will be fatal.

The propriety of repeating the blood-letting will depend entirely upon the nature and extent of the remaining symptoms. After the violence of the symptoms are reduced, a large blister around the throat, warm foot-baths and mustard poultices to the extremities, will unquestionably be beneficial.

In the very commencement of laryngeal inflammation, emetics have been highly recommended by Dr. Armstrong. He prescribes tartar emetic alone, or combined with ipecacuanha, in repeated doses, until full and frequent vomiting is produced; which is to be again excited by the same means, the moment the least stricture of the larynx returns.

If the treatment now laid down does not speedily arrest the disease, and the danger of suffocation is imminent, no time should be lost in resorting to the operation of bronchotomy, so as to enable the patient to breathe through an artificial opening into the windpipe, while at the same time additional efforts are made to subdue the inflammation. Considered in itself, the operation is without danger, and attended with but trifling pain. It has succeeded in several instances in preserving life under the most unpromising circumstances.

The patient affected with inflammation of the larynx is to be allowed no food, and only a very little cold gum water to assuage his thirst. After his recovery, the utmost caution must be observed to guard against exposure to cold or damp, and every cause capable of producing a relapse.

CATARRH.

By catarrh, or, in popular language, a cold, is meant an inflammation more or less intense of the lining membrane

of the nostrils, throat, windpipe, and bronchii. It commonly begins with some difficulty of breathing through the nostrils, and a sensation of fullness and heat in those parts, with frequent sneezing, and a dull pain and feeling of weight in the forehead, as well as some difficulty and uneasiness in moving the eyes. These symptoms are sometimes from the very first, and always in the course of the disease, attended with the discharge of a thin, transparent, watery fluid from the nose, and a watery state of the eyes.

The local symptoms are commonly attended by a sense of general lassitude or weariness, and flushes of heat alternating with coldness or shivering, especially when the patient moves, or is exposed to an atmosphere somewhat colder than ordinary.

If no imprudence be committed in eating or drinking; if the patient confine himself to his chamber, and make use only of light vegetable food, have his feet bathed on going to bed, and afterwards drink plentifully of some tepid fluid, as weak tea, toast water, or warm lemonade; having his bowels, at the same time, gently opened by a dose of salts, the disease will in general go off completely in a day or two. But if neglected or mismanaged, more serious symptoms present themselves, and we have then a more unmanageable and serious complaint to contend with. In general, the voice becomes hoarse, a sense of roughness and soreness is experienced in the throat, with more or less difficulty of breathing, tightness of the chest, and cough. The pulse becomes increased in frequency, the skin hot and dry. All these symptoms are increased towards evening, and from the fever and short irritating cough, the patient is prevented from sleeping. The cough is generally at first dry, and causes pain in the chest. Pains resembling those of rheumatism are occasionally experienced in the muscles of the neck, head, chest and back. The appetite is impaired, and there is an increase of thirst. In the progress of the disease, the cough is attended with an

expectoration of mucus, which is at first thin and brought up with difficulty; gradually, it becomes thicker, more copious, and is discharged with less violent coughing. In favourable cases, the hoarseness and soreness of the throat, and the fever, abate as the expectoration becomes more copious. The cough comes on less frequently, and finally ceases altogether. But in other instances, in place of this gradual abatement of the disease, it increases in violence, and all the symptoms of inflammation of the lungs are developed. In persons predisposed to consumption, the occurrence of even a slight catarrh often brings on that disease, or when its symptoms are already present, causes it to run on rapidly to a fatal termination. In the aged and infirm, an attack of catarrh is always to be viewed as a very serious complaint, it frequently, in them, destroying life in a very few days. After repeated occurrences of catarrh, it occasionally assumes a chronic form, attended with a train of symptoms closely resembling those of pulmonary consumption, but which, nevertheless, may often be entirely removed by an appropriate treatment.

The usual causes of catarrh are sudden transitions from a dry and warm, to a moist and chilly atmosphere; or exposure to cold and damp, when the body is in a state of perspiration or greatly fatigued. In many individuals, after frequent attacks of the disease, the sympathy between the skin and lining membrane of the nostrils, throat and air passages, becomes so remarkable, that catarrh is liable to be induced by the slightest exposure, even by sitting a few moments in a cool apartment, or by wearing a lighter dress than usual, and this during the summer, as well as at other seasons of the year. It is to be remarked, also, that a person labouring under catarrh is always more liable to suffer from the application of cold to his surface than when in health. Even a very trifling diminution of the temperature of the skin will cause the disease, after it has become considerably abated, to recur

with increased violence, or convert it into an affection of the lungs of a most aggravated character.

In regard to the treatment of catarrh, this will depend very much upon the violence of the symptoms, and the stage of the complaint. In light attacks, a low diet, confinement to the house, abstinence from all spirituous or fermented liquors, a dose of salts, and bathing the feet at night in warm water, with the plentiful use of toast water, weak tea, or barley water, will in general be sufficient to restore the patient to health; but in the more violent attacks, occurring in young, robust and full-blooded subjects, or in those predisposed to disease of the chest, a more vigorous treatment will be demanded.

One of the most effectual means to remove a catarrh, is administering, in its forming stage, an emetic of tartarized antimony, followed by a warm foot-bath, and after the patient has retired to bed, to give him a table-spoonful every three hours of the following mixture; sulphate of magnesia, one ounce; powdered nitre, one drachm; boiling water, ten ounces; tartaremetic, two grains; or he may take one grain of opium, one grain of ipecacuanha, and ten grains of powdered nitre.

Whenever, however, the disease is fully formed, and is attended with considerable difficulty of breathing, a hard, dry cough, a full, frequent pulse, heat of the skin, and acute pain of the chest, the abstraction of a sufficient quantity of blood, fully to relieve these symptoms, should never be neglected. If any difficulty of breathing, with pain and oppression of the chest remain, or return after the first bleeding, leeches or cups should be applied upon the breast, as near as possible to the seat of the pain. Subsequently to the bleeding, the bowels are to be freely opened by a solution of the sulphate of soda or magnesia; and when by these means the violence of the symptoms is abated, should the skin still continue morbidly hot and dry, and the cough be frequent and harassing, one of either of the following powders may be given every three

hours: powdered nitre, one drachm; tartar emetic, one grain, to be mixed together and divided into eight powders; or, powdered ipecacuanha, eight grains; powdered opium, three grains, and powdered nitre, one drachm: to be made into ten powders. During the use of these powders, the patient should be confined to bed, and at night have his feet bathed with warm water. His drinks should be balm tea, toast water, or weak lemonade, taken milk-warm.

To relieve the cough, so long as any fever remains, mild demulcents alone are to be administered; such as barley, rice, or gum water, an infusion of flaxseed or bark of the slippery elm, rendered slightly acid by the addition of lemon or lime-juice. A piece of refined liquorice, gum arabic, or rock-candy, held in the mouth and gradually swallowed as it dissolves, will often afford great relief, quieting the cough even more effectually than when taken in the form of mucilage or syrup. The inhalation of the vapour of hot water is likewise an excellent means of abating the cough and relieving the inflammation of the throat and bronchii. The inhalation should be frequently repeated, either through an appropriate machine, or when this is not at hand, through a common funnel, or the spout of a tea-pot.

Blisters will not be required in the generality of cases of catarrh. When, however, the inflammation of the throat, or the pain and oppression of the chest continue after bleeding from the arm and the application of cups or leeches to the breast, or the disease is inclined to assume a chronic form, the application of a blister to the chest will be productive of the best effects.

During the continuance of the disease, the patient should be confined to his chamber, which is to be kept of a moderate but uniform temperature, and he should make use of a very spare, light diet, from which meat and spices are to be entirely excluded. No distilled or fermented liquors are on any account to be allowed.

When the cough begins to be ac-

companied by an expectoration of mucus, the use of either of the following mixtures will be found advantageous. Syrup or oxymel of squills, one ounce; gum arabic, three or four drachms; tartarized antimony, two grains; sweet spirits of nitre, half an ounce; pure water, four ounces; a tea-spoonful for a dose every two or three hours: or, extract of liquorice, one ounce; gum arabic and sugar-candy, of each two drachms; tartarized antimony, two grains; sweet spirits of nitre, half an ounce; pure water, five ounces; in the same dose as the former. At a more advanced stage of the disease, when the fever, difficulty of breathing, pain of the chest, and other prominent symptoms are considerably abated, but a frequent harassing cough keeps up the soreness of the throat, and prevents the patient from sleeping, we may add to either of the above mixtures from two to three grains of opium; or the patient may take a dose of Dover's powder at bed-time. It must be recollected, that however proper and beneficial opium may be when given in the declining stage of the disease, yet, if prescribed while the local symptoms are still present to any considerable extent, or any degree of fever remains, it will be productive of very considerable injury, increasing the cough, pain, difficulty of breathing and oppression at the chest.

When catarrh has assumed somewhat of a chronic form, it is a disease which demands a very great degree of judgment on the part of the physician to insure its speedy and perfect removal. The remedies now are an emetic, repeated occasionally, if the symptoms demand it; if there be much pain or oppression of the chest, cups to the breast; in most cases, blisters to the side or breast, frequently renewed, are highly important; small doses of ipecacuanha, opium and calomel combined, will, also, often produce the most decided relief. To promote expectoration and relieve the cough, the following will be found an excellent mixture: mucilage of gum arabic, four ounces; oxymel of squills, one ounce;

tartar emetic, one grain; balsam copiba, four drachms; a tea-spoonful to be given every three hours; or we may administer a mixture of gum ammoniac, or a strong infusion of senega. The body should be preserved warm and of an equable temperature by proper clothing. When the patient can bear it, and the weather will permit, gentle exercise in the open air, by walking, sailing or riding on horseback, should be taken daily, and his strength should be supported upon a light, unirritating, but nourishing diet, as different preparations of milk, with bread, biscuit, rice or flour.

After recovery from a catarrh, every possible precaution should be taken to guard against its recurrence, by avoiding its exciting cause, exposure to cold and damp.

INFLUENZA.

This is precisely the same disease as the foregoing, excepting that it occurs as an epidemic, and is generally attended with symptoms of greater severity. In regard to the cause of this form of catarrh, nothing positive can be said. When, however, we consider its occurrence at one and the same time in places widely separated from each other, the number of persons simultaneously attacked by it, as well as its wide and rapid spread, all these circumstances prove incontestably, that it depends for its origin and propagation upon some cause connected with the atmosphere. But whether this be a poisonous exhalation floating in the air, or merely certain sensible changes in the temperature, or state of dryness or moisture of the latter, it is very difficult to say. We are strongly inclined, however, to the latter opinion, from the circumstance, that in most of the accounts presented to us of the occurrences of the influenza in this country and in Europe, it is stated, that the weather, immediately before the disease made its appearance, and often during its continuance, was extremely unseasonable, or subject to sudden changes from

cold to warm, from dryness to moisture, or vice versa.

As already intimated, the symptoms of influenza differ but little from those of ordinary catarrh, excepting in their greater severity. The disease commonly attacks suddenly, and soon acquires its utmost height. Many patients are affected with a sensation of soreness within the chest, and a severe pain over the eyes, increased by coughing. The eyes are frequently painful, red and watery. In some patients, the pains of the back, loins and limbs are extremely acute, and accompanied with a feeling of great lassitude or of fatigue, as after over-exertion. When the pains in the breast and side are very acute, they are generally attended with a distressing and almost incessant cough, and a scanty expectoration of a tough, white mucus; in other cases, however, the cough is less severe, and the expectoration copious. In many instances, the symptoms nearly resemble those of rheumatism. In very old persons, the disease generally commences with the utmost lethargy and a complete prostration of strength. Influenza is far more fatal than common catarrh, producing often an attack of croup in children, consumption in the predisposed, and frequently severe and incurable diseases of the brain and lungs in other individuals.

The treatment of influenza differs in nothing from that which is proper in the most severe cases of common catarrh.

PULMONARY INFLAMMATION.

Under this term we shall include both inflammation of the pleura, or *pleurisy*, and inflammation of the substance of the lungs: the two affections being most generally complicated with each other, while their leading symptoms, when they occur separately, are nearly similar, and the treatment is precisely the same in both.

Pulmonary inflammation commences with the usual symptoms of fever; a sense of cold or shivering, succeeded

by increased heat and dryness of the skin, thirst, flushed face, furred tongue, and increased frequency of pulse. In some cases, however, there is little or no increase of heat, and the pulse is not more frequent than natural. Very soon a difficulty of breathing is experienced, and a pain, more or less acute, in some part of the chest, increased upon inspiration, and in particular positions of the body. Occasionally the pain is dull, or rather there is a sense of weight and oppression in the chest, rather than of pain. The pain is commonly fixed, but sometimes shoots towards the shoulder, or upper part of the breast. It is invariably accompanied by a short, dry, distressing cough, by which it is greatly exasperated. In the beginning of the disease, the cough is seldom accompanied with much expectoration; a little frothy mucus is generally, however, brought up by it, which, in the course of the disease, is often streaked with blood. Subsequently, however, an expectoration of a yellowish viscid matter takes place, which becomes whiter, softer and more easily brought up as the disease progresses. The blood drawn in pulmonary inflammation, on being allowed to stand, ordinarily presents a thick size, or buffy crust, covering the surface of the coagulated portion, which latter is firm, and has its edges inverted, so as to assume a cupped form. The foregoing symptoms are of greater or less violence, according to the extent and intensity of the inflammation.

Pulmonary inflammation may terminate either by resolution, suppuration or gangrene. The latter termination is, however, of extremely rare occurrence.

Its termination in resolution is marked by a gradual subsidence of all the symptoms. The respiration becomes more free, the expectoration more copious, the cough less frequent and distressing; the fever disappears, and the pulse becomes softer and less frequent. The disease is sometimes suddenly arrested by a spontaneous discharge of blood from the nose, or a very copious

expectoration of a thick, yellow-coloured mucus, brought up without much cough; and sometimes, but more rarely, by the appearance of an eruption on the skin.

The termination in suppuration is to be apprehended, by the obstinacy and but little violence of the symptoms, and their not yielding entirely to an appropriate treatment within the first four or five days, and if there be but little expectoration, or especially if delirium, with a soft, undulating pulse, supervenes. Where suppuration has actually taken place, the symptoms are, frequent, slight shiverings; a mitigation or cessation of the acute pain, with a continuance of the cough and a difficulty of breathing; the pulse being soft, fuller, and either slower or more frequent; by a redness of the cheeks and lips, an increase of thirst, and other symptoms of fever towards evening. An abscess being formed in the lungs, the breathing becomes very short and laborious, and attended with rattling in the chest; the cough short, dry and obstinate; the patient is able to lie only on the affected side; the urine is muddy; the countenance pallid; the body becomes quickly emaciated and enfeebled, and night-sweats and diarrhoea make their appearance.—When the abscess is situated on the external surface of the lung, immediately beneath the ribs, a soft, indistinct swelling may be sometimes felt externally, with an evident fluctuation of matter. In such cases, an opening may be made into the abscess, between the ribs, the matter discharged, and the life of the patient frequently preserved. When the abscess is deeper seated in the substance of the latter, it may burst into the air-cells of the lungs, and if it do not immediately cause the death of the patient by suffocation, the matter may be discharged by expectoration, and the patient be finally restored to health.

The termination of pulmonary inflammation in gangrene of the lungs, is of very rare occurrence. It is denoted by a sudden cessation of all pain, a paleness or lividity of the counte-

nance; an extremely feeble and intermittent pulse; cold, clammy sweats; dark-coloured, fetid expectorations; intolerable fetor of the breath, hiccup, stupor, and finally death.

Besides the above terminations, pulmonary inflammation may cause, 1st, an effusion of serum or blood into the lungs, producing suffocation; 2d, an obliteration, to a greater or less extent, of the air cells of the lungs, and their conversion into a solid flesh-like mass; 3d, an effusion of serum into the cavity of the chest, producing dropsy of the chest, or of pus, producing empyema; 4th, an adhesion between the surface of the pleura covering the lungs, and that lining the cavity of the chest.

Those of a strong, vigorous and plethoric habit, who live on a full animal diet, and indulge freely in the use of fermented liquors, are most subject to acute pulmonary inflammation. It is also of more frequent occurrence in the country than in crowded cities. The period of life most liable to its attacks is that of full adult age. It is of more rare occurrence in children, and when it attacks the aged, it very generally assumes a particular and very fatal form, to be noticed hereafter. The most common exciting cause is exposure to cold and damp, when the body is in a state of perspiration or fatigue; or sudden changes from a warm and moist state of the atmosphere to extreme cold. It is also occasionally induced by over-exertion of the lungs in speaking, declaiming, singing, &c., by the inhalation of certain acrid vapours, &c. They who have been once affected by pulmonary inflammation, are very liable to a return of the disease upon slight exposures to cold.

In the treatment of inflammation of the lungs, a prompt and energetic course is all-important, even in cases marked by apparently the mildest symptoms. For in the more acute cases, if the violence of the symptoms be not reduced speedily, the life of the patient can not be preserved; and in less violent cases, if the disease be neglected or improperly treated, a disorganization of the

lungs, to a greater or less extent, may be produced, from which great suffering and inconvenience will result, if it do not eventuate in a speedy death. Bleeding, therefore, should be had recourse to as early as possible, in every attack of pulmonary inflammation. A large orifice should be made in the vein, and the blood permitted to flow until a very sensible relief of the pain, difficulty of breathing, and oppression of the chest is obtained, or until a degree of faintishness is induced. If the pain and difficulty of breathing return after the first bleeding, or the pulse become again full and hard, the operation should be again repeated immediately, and to a similar extent. If, however, the pain and difficulty of breathing be only to a slight extent after the first bleeding, or should they return after its repetition, then the application of a number of cups over the chest, should be resorted to, and if necessary, repeated. Every thing depends upon reducing the violence of the inflammation as quickly as possible by general or topical bleeding.

Some difference of opinion exists among practitioners as to the propriety of purgatives in this disease, and the weight of testimony would appear to be against their employment. Nevertheless, as the irritation arising from a costive or loaded state of the bowels is highly prejudicial, they should be fully emptied in the commencement of the attack by a large dose of salts, and subsequently kept regularly open by an occasional dose of Seidlitz powders or by injections.

After bleeding, the nitrous powders are highly important remedies in pulmonary inflammation, often speedily removing the remaining symptoms of the disease. They may be made by combining together one drachm of nitre and two grains of tartar emetic, and dividing into twelve powders, one of which is to be given every two or three hours, according to circumstances. If they produce vomiting, the quantity of the tartar emetic should be reduced. The disease has been treated by large doses of tartar emetic alone, and the success

of this practice has been spoken of in high terms; but although we consider the remedy, in nauseating doses, to be a very valuable one in pulmonary inflammation, after the free use of the lancet, yet we look upon the latter as our chief dependence, and cannot recommend its omission in any case.

To diminish the cough, which is always an extremely troublesome symptom, it is proper to administer in small quantities, frequently repeated, some mucilaginous fluid, as gum water, flaxseed tea, &c., or to allow the patient to inhale, at short intervals, the vapour of hot water, as in catarrh.

There is perhaps no disease in which the application of a blister is productive of greater benefit than in pulmonary inflammation. The blister should be of considerable size, and applied directly over the seat of the pain; not, however, until after the violence of the inflammation has been considerably reduced by general and local blood-letting. If the first blister does not produce all the relief expected, after it has healed, a second should be put on, which is a much better plan than keeping up the discharge from the first by irritating dressings.

In pulmonary inflammation, the diet of the patient and his drinks should be restricted to small quantities of toast, barley, or gum water, flaxseed tea, infusion of slippery elm, rendered slightly acid by the addition of lemon-juice. All solid and animal food, and all stimulating drinks should be strictly forbidden. The air of the patient's chamber should be perfectly pure, and of a uniform but moderate temperature. From all exercise, even speaking more than is necessary to make known his feelings and his wants, the patient should be restrained, and he should be confined to his bed, in such a position as shall be the most agreeable to his feelings.

After the violence of the inflammation has been completely subdued by the foregoing means, and a free expectoration takes place, benefit will be derived from the following prescription;

powdered ipecacuanha, ten grains; powdered camphor, ten grains; powdered nitre, fifty grains, for ten powders; one to be given every three hours; or, we may give a tea-spoonful of the following, every two hours; mucilage of gum arabic, four ounces; syrup or oxymel of squills, one ounce; tartar emetic, one grain; camphorated tincture of opium, three drachms.

When, after the violence of the disease has been subdued, there remains a dry, irritating cough, attended with a feeling of soreness along the windpipe, a decoction of senega by itself, or combined with extract of liquorice, candy and tartarized antimony should be resorted to, or the balsam copaiba; the latter may be given as follows; syrup of squills, one ounce; mucilage of gum arabic, five ounces; tartar emetic, one grain; balsam copaiba, four drachms; of this mixture the dose is a tea-spoonful every two or three hours. The mixture of gum ammoniacum under the same circumstances, will also be found useful.

In cases attended, towards the decline of the disease, with little or no expectoration, great depression of strength, a dry skin, and small feeble pulse, with great difficulty of breathing, and rattling within the chest; especially when these symptoms occur in aged persons or those of broken-down constitutions, the subcarbonate of ammonia may be given with decided advantage, either alone or combined with the camphorated mixture, or gum ammoniacum and squill; under similar circumstances, a strong decoction of senega will often be found beneficial. In the use, however, of these stimulating expectorants, great caution is demanded. So long as inflammation of the lungs continues to any extent, their employment will be decidedly injurious; these symptoms must always be first reduced by bleeding or cups, according to circumstances, blisters to the chest, and antimonials, before resorting to either the ammonia or senega.

When from any cause, pulmonary inflammation assumes a chronic form,

denoted by a greater mildness and obstinacy of all the symptoms, slight fever in the afternoon, and a short, dry, harassing cough; the pulse becoming small and frequent, and the patient considerably emaciated; after bleeding, general and local, and blistering have been carried as far as it is thought prudent, a combination of small doses of ipecacuanha, calomel and opium, repeated at short intervals, say half a grain of calomel and ipecacuanha, with a quarter of a grain of opium, every three hours, will often act as a charm in relieving the respiration, allaying the cough, promoting expectoration, and removing the daily paroxysms of fever. The patient may, at the same time, take occasional doses of the senega tea, and have applied to the chest the tartar emetic ointment, so as to produce and keep up an eruption upon the skin of that part. His diet should always be spare, very light, but nourishing.

When pulmonary inflammation terminates in suppuration, if the abscess can be felt externally, it should be opened; if it breaks into the air cells of the lungs, and the patient is not speedily destroyed, a light, unirritating diet should be given, the thorax should be covered with a blister, and a combination of opium and ipecacuanha, in small doses, administered every three hours, with the decoction of senega, and the mixture of balsam copaiba.

After recovery from inflammation of the lungs, the utmost caution must be observed to guard against a relapse.

PNEUMONIA NOTHA.

This is a peculiar inflammation of the lungs, which most generally attacks the aged, and those whose constitutions have been broken down by previous disease, luxurious living, or a free indulgence in intoxicating liquors. It differs from acute pulmonary inflammation from its being the mucous or lining membrane of the lungs which is principally affected. The inflammation is also of a less acute character, and is accompanied by some degree of overfullness of the pulmonary vessels. It

terminates in a copious secretion of thin mucus, which being poured into the air cells of the lungs, impedes respiration, and finally, if it be not discharged by a copious expectoration, produces suffocation. The disease generally commences in the same manner as catarrh. There is commonly great languor, listlessness, vertigo, and pain of the head and back. There is seldom any considerable degree of fever. As the affection of the lungs increases, the patient is affected with great difficulty of breathing, and more or less wheezing or rattling in the chest; there is also great anxiety, and a feeling of oppression or tightness about the breast. Early in the attack, there is usually a cough, attended with an expectoration of white, viscid and frothy mucus. In many cases, the cough is extremely violent, and causes a most intolerable pain of the head. Vomiting is a frequent symptom, and is often excited by the violence of the cough. Occasionally no cough attends the disease. Most generally, there is a considerable degree of vertigo, with flushing of the face, and not unfrequently, a degree of drowsiness almost amounting to stupor. Over the whole anterior part of the chest, a dull pain is usually experienced; it may, however, be so slight, that the patient does not complain of it until questioned. Death is generally preceded by increased difficulty of breathing, complete stupor, contracted visage, lividness of the nails, and coldness of the extremities. When the disease terminates favourably, it is by a free and copious expectoration. The greater the degree of exhaustion under which the patient labours; the more short, oppressed, and difficult the breathing, and the less free and copious the expectoration, the greater the danger.

The causes of pneumonia notha are the same as those of catarrh, or pulmonary inflammation, acting upon a debilitated or broken-down constitution.

In regard to the treatment, this must vary according to the nature and violence of the symptoms. If there be

considerable pain in the chest, great difficulty of breathing, or oppression of the breast, the use of the lancet may be demanded; but in consequence of the advanced period of life, and infirm constitutions in which the disease most generally occurs, in the majority of cases, it will be preferable to apply a sufficient number of cups to reduce the inflammation and congestion of the lungs with as little delay as possible. Even in cases where the debility of the patient is such as to forbid the loss of the least quantity of blood, the application of dry cups will often be beneficial.

In the very commencement of the disease, or after the local symptoms have been reduced by our remedies, a gentle emetic of ipecacuanha will generally produce the most decided relief. The emetic may even be repeated, if the expectoration remains scanty and the breathing be very much oppressed. After the operation of the emetic, small doses of ipecacuanha, squill and opium, or camphor, will be found an excellent prescription. We may give one grain of ipecacuanha, two of squill, and a fourth of a grain of opium, or half a grain of camphor, every three hours: the patient, at the same time, should make use of an infusion of eupatorium or senega.

The bowels should be kept open regularly during the disease, by castor oil or laxative injections.

In all cases of this disease, blisters are important remedies; they should be of considerable size, and applied to the chest, immediately after the cups are taken off. After the first has healed, a second should be put on, if the symptoms are not considerably abated.

When the expectoration is scanty and the strength of the patient much reduced, different preparations of squill, infusion of senega, sub-carbonate of ammonia or copaiba, will be proper. The same prescriptions may be resorted to as were directed in the latter stages of pulmonary inflammation.

When the patient is found to be ra-

pidly sinking, ammonia in combination with assafoetida, five grains of the first, with five or six of the latter, every three hours, will, in some instances, produce a beneficial change in the symptoms; particularly if at the same time blisters are applied to the legs, thighs and arms. In these cases, a whey made by infusing mustard in milk, is highly recommended by some writers.

The diet in pneumonia notha should be moderate, very light and easily digested; panado, gruel, arrow-root, or tapioca, will be in general the best. The patient should be kept in a room of a moderate and uniform temperature, and in every respect perfectly clean.

During convalescence, the same cautions are to be observed to guard against a relapse, as in catarrh, or pulmonary inflammation.

INFLAMMATION OF THE STOMACH.

Inflammation of the stomach is marked by a more or less acute fixed pain and sense of burning at the region of the stomach; which symptoms are aggravated by every thing taken into the stomach, by the motions of the body, and by pressure.

Inflammation may come on very gradually, or be suddenly developed, according to the causes by which it has been produced. When the disease is fully developed, the pulse is very small, contracted, hard and frequent; there exist great anxiety, oppression, and a greater prostration of strength than in most other acute inflammatory affections. Every thing taken into the stomach occasions vomiting, with painful retchings. Hiccup is also an early symptom. The features of the face are contracted, shrunk, and altered from their natural expression. There is distressing thirst, a continual tossing of the body, constant wakefulness, and in general a costive state of the bowels. In violent cases, there is difficulty of breathing, with increase of pain on a deep inspiration. In the course of the disease, fever, with intense heat of the

skin, is sometimes developed, and at others, delirium, convulsions and stupor.

Acute gastric inflammation may either terminate in resolution, become chronic, or produce disorganization in the stomach, by which the death of the patient is quickly induced.

The most usual causes of inflamed stomach, are large draughts of cold fluids taken when the patient is in a profuse perspiration, or over-fatigued by exercise; cold applied externally, under similar circumstances; contusions or blows upon the abdomen; intemperance in eating; hard, or acrid articles taken into the stomach; the violent operation of emetics; or the excessive use of ardent spirits. It may likewise be caused by inflammation extending to the stomach from other parts; by the sudden suppression of various eruptive diseases or habitual discharges.

As inflammation of the stomach is always a dangerous complaint, terminating fatally, when violent, in the course of a few hours, or when less acute, producing a long series of distressing and painful symptoms, and causing incurable disorganization of the stomach, or by sympathy, producing disease of the skin, joints or brain, it is all-important that it be treated in every case with promptness and energy. When the inflammation is of a very acute grade, a quantity of blood should be at once taken from the arm, commensurate with the violence of the pain and other local symptoms, without any attention to the small thready appearance of the pulse, or the symptoms of general exhaustion. The pulse will invariably rise, and the patient become stronger after the first bleeding. Subsequently to bleeding from the arm, the region of the stomach should be covered with leeches, and the flow of blood encouraged, after they have fallen off, by warm fomentations. This treatment is the one adapted to the more acute cases, in which direct depletion by the lancet and leeches should always be carried to as great an extent as the patient can bear without faint-

ing; the important object being to reduce the inflammation with as little delay as possible. In less acute cases, bleeding from the arm will not be necessary, provided an early and free application of leeches over the stomach be had resort to. In all cases of gastric inflammation, leeches are an important and indispensable remedy, and they should be repeated again and again, until the local symptoms are entirely removed; their number, and the intervals of their application, being adapted always to the urgency of the disease.

After bleeding, general and local, has been carried as far as it is thought advisable, and some degree of inflammation still remains, the region of the stomach may be covered with a blister. In regard to internal remedies, there is none, with the exception of minute portions, frequently repeated, of cold gum water, or iced water, but what would have the effect of irritating the stomach and increasing the inflammation. The vomiting and sense of burning, by which the patient is often so much distressed, can be relieved only by the lancet or leeches, and by the cold fluids just alluded to. In some cases, advantage has been derived from a tea-spoonful of powdered ice, slowly swallowed, and occasionally repeated.

Bathing the feet in warm water, and the application of sinapisms to the ankles, will, in some cases, be found beneficial. The bowels should be kept regularly open by laxative injections.

Chronic inflammation of the stomach is to be treated by the judicious application of leeches, by a very spare diet, of barley-water, gum-water, tapioca, or panado; by blisters to the region of the stomach; by the warm bath and frictions of the skin, and by gentle daily exercise in the pure open air.

INFLAMMATION OF THE INTESTINES.

This disease, in its symptoms, does not differ widely from the foregoing, and perhaps, in a majority of cases, at least in a partial degree, accompanies it. Intestinal inflammation usually com-

mences with a slight chill, and a sense of uneasiness in some portion of the abdomen, at first intermittent, but gradually becoming permanent, and finally changing to a fixed pain of more or less acuteness, which spreads over the whole abdomen. The latter is somewhat swollen, tense, and sore to the touch. Obstinate costiveness generally attends the disease, and sometimes severe vomiting. The pulse is very small, hard and frequent, and the tongue dry and furred. The thirst is extreme; the urine high-coloured, small in quantity, and most commonly discharged with difficulty. The breathing is short and laborious, and the patient generally lies upon his back, with his knees drawn up towards his breast. If the disease be allowed to proceed, these symptoms augment in violence. The abdomen becomes greatly distended with air; small mucous discharges take place from the bowels, with considerable straining; the peristaltic action of the intestines sometimes becomes inverted, and feces are discharged by the mouth. Suddenly the agony of the patient ceases, he appears to have obtained relief from his disease, but his intermittent and scarcely perceptible pulse, the paleness and livid hue of his face, the icy coldness of his extremities, and other alarming symptoms, indicate that mortification has taken place, which is quickly succeeded by death.

Intestinal inflammation is capable of being produced by all the causes which give rise to inflammation of the stomach; it may also be produced by drastic purgatives, strangulated hernia, &c.

From colic, the inflammation of the intestines may be distinguished, by the presence of more or less fever, by the fixed and continued pain, increased upon pressure, and by the small, hard, frequent pulse. In colic, there is no fever; the pain comes on in paroxysms, with distinct intervals of rest, and is diminished, rather than increased, by pressure.

The treatment of inflammation of the intestines differs but little from that di-

rected in gastric inflammation. The prompt evacuation of blood from the arm, and by leeches applied over the seat of the pain, and repeated so long as the local symptoms remain, and the strength of the patient will permit, followed by a blister, is demanded in the one case as in the other. The same cold fluids internally, will likewise be proper. After the violence of the inflammation has been reduced, four grains of calomel, every two hours, should be given, combined with mucilage of gum arabic, until a copious evacuation from the bowels is obtained; the operation of the calomel being aided by laxative injections. In some cases, fifteen grains of calomel with two of opium, will produce a very prompt evacuation, and relieve greatly the remaining symptoms of the case. Recollect, however, that the cure of the disease will mainly depend upon bleeding, general and local, judiciously employed.

During convalescency from inflammation of both stomach and bowels, the greatest caution must be observed, by a mild, well regulated diet; abstinence from all stimulating drinks; by guarding against exposure to cold, and over-exertion of the body; by keeping the bowels regular, and using gentle daily exercise in the open air, to prevent a recurrence of the disease.

INFLAMMATION OF THE LIVER.

Acute inflammation of the liver is generally ushered in by a chill, succeeded by all the symptoms of fever. To these are soon added pain in the region of the liver, sometimes acute and shooting, with a sense of tension in the right side; at others, fixed and severe, or deep-seated and obtuse. The pain commonly extends to the breast, collar-bone, and shoulder of the right side. The pain in the side is increased by pressure, especially when the position of the body is such as to relax the abdominal muscles, and in general, when the patient lies upon his left side. When the left lobe of the liver is the part affected, pain is frequently felt in the left shoulder. The pain is often

increased during inspiration, and the breathing is in consequence often impeded, more especially when the portion of the liver in contact with the diaphragm is inflamed. A severe cough is then also generally present, and in the course of the disease, hiccup commonly occurs. The cough in this disease is usually dry, short and frequent.

From the cough and difficulty of breathing, which so often attend inflammation of the liver, it is often mistaken for pulmonary inflammation; happily, the treatment of the two diseases does not materially differ. Indeed, when the upper convex portion of the liver is affected, the inflammation does occasionally extend to the diaphragm and lungs; when, also, this part of the liver is the seat of the disease, a considerable swelling may, in many cases, be detected externally. When inflammation attacks the lower or concave portion of the liver, the stomach is apt to partake of the disease, and then nausea and vomiting are often present to a considerable extent, while the cough and difficulty of breathing are less severe or entirely absent.

In most cases of inflamed liver, the skin, eyes and urine have the same deep yellow tint as in jaundice. The pulse is various, being sometimes small and feeble; at others, full and strong, but most commonly hard. The urine is ordinarily high-coloured; the heat of the skin and the thirst considerable; the mouth dry, and the tongue coated with a yellowish mucus, which, in the course of the disease, becomes often dark brown or even black. There is likewise wakefulness, restlessness, and in a few instances, delirium. In some cases, the bowels are costive; in others, a diarrhoea, with considerable griping and bilious stools, occurs.

Inflammation of the liver may terminate either in resolution, suppuration, or in an enlargement and induration of the organ. The termination in resolution is often preceded by a discharge of blood from the nose, or from piles; sometimes by a copious perspiration, or increased discharge of mucus from

the lungs. A copious flow of deep-coloured urine, occurring about the fourth day, and depositing, after standing, a red or whitish sediment, is also a favourable symptom; the same is true of free bilious discharges from the bowels.

We are to apprehend an abscess in the liver from the obstinacy of the symptoms. As soon as the abscess is formed, the acute pain in the side is changed into a sense of weight and pulsation; the former being increased when the patient lies upon the left side. There are also frequent irregular shiverings, and finally, all the symptoms of hectic fever. When the abscess is seated on the external surface of the liver, a tumour and fluctuation of a fluid can be detected just below the ribs, on the right side, and by an incision, the matter may be evacuated, by which the chance of the patient's recovery will be greatly increased. When the abscess is more deeply seated, an adhesion taking place between the liver and intestines, the matter may find its way into the cavity of the latter, and be discharged by stool. In this case, the patient often recovers. Adhesions may likewise take place between the liver and diaphragm, and between the latter and the lungs, so as to permit the contents of the abscess to be discharged into the bronchii. When this occurs, the termination is most generally fatal.

Inflammation of the liver is of more frequent occurrence in hot than in temperate or cold climates, and it more generally attacks adults than children. Its most common causes are the action of excessive heat upon the skin; sudden changes of weather; the sudden application of cold or damp to the body when heated; contusions or violent blows upon the head or other parts of the body; the excessive use of vinous and spirituous liquors; high living, and intemperance generally; violent passions of the mind, particularly anger and rage; the suppression of various habitual discharges, and irritations of the stomach generally.

The general outline of the treatment of acute inflammation of the liver, dif-

fers in nothing from that demanded in other acute inflammations of the internal organs. Bleeding from the arm should be early resorted to, and carried to a sufficient extent at once, to reduce the violence of the symptoms, and it should be again repeated, without loss of time, provided the local disease is not entirely removed by the first bleeding, or the pain and uneasiness of the side again return. Subsequently to general bleeding, the free application of cups or of leeches as near as possible to the seat of the disease, will be in most cases an important remedy. After the activity of the inflammation has by these means been abated, a blister should be applied over the region of the liver, and, if necessary, repeated after the first has healed.

In conjunction with local and general blood-letting, purgatives will always be found beneficial, by unloading the intestines and increasing the secretions poured into their cavity. Calomel appears, from very general experience, to be the purgative best adapted to this disease, and it should be administered, after the first bleeding, to the extent of ten or fifteen grains, and followed at short intervals by small doses of salts or an infusion of senna. The employment of copious injections of flaxseed tea, infusion of slippery elm bark, and the like mucilaginous fluids, has a good effect, by removing irritation from the lower portion of the bowels, and aiding the operation of the purgatives taken by the mouth.

After the violence of the disease has been broken by these remedies, if some uneasiness of the side still remain, with a furred tongue, dry skin and accelerated pulse; if active depletion, or the application of cups to the side is not considered advisable, or even in conjunction with it, small doses of calomel, ipecacuanha and opium, with the occasional use of the warm bath, will very generally produce a beneficial change in the remaining symptoms. We may give a pill, composed of one grain of calomel and ipecacuanha, and

a quarter of a grain of opium, every three hours.

The diet, in inflammation of the liver, must be composed simply of toast, barley, or gum water, taken in very moderate quantities at a time. Unless the diet is carefully attended to, the efficacy of the remedies employed will be greatly impaired, the case prolonged, and probably disorganization of the liver produced.

It is a very common thing for physicians to advise, in inflammation of the liver, a very early resort to mercury, with a view to produce its specific effects. In the acute forms of the disease, as they occur in temperate climates, we are persuaded, however, that an early and judicious employment of bleeding, with calomel, as a purgative, is better calculated to produce a favourable termination of the case, than the too customary practice of resorting to mercury internally and externally until it produces salivation. When the disease is rapidly verging towards a chronic form, an alterative course of mercury will, no doubt, when cautiously employed, often produce beneficial effects; but even here, profuse salivation ought to be avoided.

During convalescence from inflammation of the liver, the diet of the patient may be rendered more nutritious, but it should still be simple, unirritating, and moderate in quantity; preparations of rice, with milk, and the farinaceous vegetables generally, will be the most appropriate articles. His bowels should be kept regular by gentle laxatives; and his body defended from sudden changes of temperature by appropriate clothing. Stimulating drinks of all kinds must be prohibited. As soon as he is able, he should take gentle exercise in the open air, carefully guarding, however, against fatigue. Cheerfulness of mind is to be encouraged by agreeable occupations and change of scene.

Chronic inflammation of the liver
This form of the disease may either follow the acute inflammation in ear

tain constitutions, especially when depletion has not been carried to a sufficient extent in its early stage, or it may be produced by an irritation seated previously in some other organ, particularly the stomach and duodenum, and extending from thence to the liver, or the disease may assume the chronic form from the commencement, in persons of broken-down habits. Chronic inflammation of the liver is attended by the same symptoms as the acute, but assuming a more obscure and insidious character, and far more slow in their progress. In conjunction, also, with the peculiar phenomena produced by the disease of the liver, we have also those of ordinary dyspepsia; wasting; defective or capricious appetite; acidity; flatulence; sense of fullness or uneasiness about the stomach; dry, harsh and discoloured skin; disturbed sleep; great depression of spirits, despondency, irritability of temper; irregular bowels; disinclination to exertion, whether mental or bodily; indeed, all that train of symptoms to which the indefinite term nervous is so generally applied. Ordinarily, chronic inflammation of the liver is attended with considerable difficulty of breathing, and a short, dry, teasing cough; sometimes, however, the cough is attended with expectoration. There is frequently a decided paroxysm of fever towards evening; more or less jaundice, and when the disease has been of long continuance, night-sweats, great emaciation, and a wasting diarrhœa. Chronic inflammation of the liver may either produce a great enlargement and hardening of the liver, perceptible to the eye and feel externally, or it may terminate in suppuration, the matter being discharged in the same manner as in the acute form of the disease. In most cases, chronic disease of the liver is attended with dropsy either externally or of the abdomen, or both; in some, peritoneal inflammation is induced; in others, a species of chronic dysentery, with ulceration of the intestines; and again, in other cases, from the operation of

various causes, but particularly indulgence in ardent spirits, chronic inflammation of the liver may be rendered acute, when it is rapid in its course, and generally fatal.

In regard to the treatment of the chronic form of liver complaint, this will depend very much upon the stage of the disease, and the nature of the symptoms. In its early stage, local bleeding by cups or leeches applied over the liver and stomach, and repeated according to circumstances, followed by blisters to the right side, in conjunction with a very light vegetable diet, the warm bath, and frictions to the surface; with a pill every night and morning of the blue mass, five grains; soap, three grains; ipecacuanha, one grain; and aloes, two grains, aided in its operation upon the bowels by an occasional dose of castor oil, or laxative injections, will very speedily remove the disease, provided the patient, at the same time, take gentle exercise, when the weather will permit, daily, in the open air: his body being defended from any sudden diminution of temperature by appropriate clothing. A permanent drain from the side, by inserting an issue or seton over the liver, has occasionally been found beneficial.

In cases of chronic affection of the liver, the dandelion has been strongly recommended by various practitioners; it may be given in the form of extract, or of a strong decoction. In conjunction with the dandelion, the nitric and muriatic acids are likewise deserving of a trial. Dr. Scott prefers the nitromuriatic acid, as the safest and most effectual. The acids should be given largely diluted, and combined with simple syrup. A bath of the nitromuriatic acid is strongly recommended by Drs. Scott and Johns; it may be applied either to the legs and feet, or by sponging, with the acid diluted with water, the whole surface of the body. The use of the remedy should be persevered in for a length of time.

When, after a trial of the foregoing remedies, it is found that some consi-

derable enlargement and hardness of the liver still remain, we may administer small doses, say three grains of the blue mass, with one of ipecacuanha, and a quarter of a grain of opium, every three hours; rubbing at the same time over the tumid liver, the camphorated mercurial ointment, or what, perhaps, will be preferable, the ointment of the ioduret of mercury. These remedies are to be continued until a slight tenderness of the gums is produced.

When chronic inflammation of the liver terminates in suppuration, the treatment is the same as when abscess follows the acute form of the disease.

The food of the patient must in every case be very light, nourishing, and easily digested, and taken in very moderate quantities at a time. Different preparations of milk, and the farinaceous vegetables, are perhaps the best. The drink should be pure water. The avoidance of cold and damp is all-important. Gentle exercise should be regularly taken, and when the disease has been subdued, a short journey or sea-voyage will be a very excellent means of recruiting the patient's strength.

INFLAMMATION OF THE PERITONEUM.

Inflammation of the peritoneum ordinarily commences with the usual symptoms of fever. The patient is seized with a severe chill or rigour, followed by an increased heat of the surface, thirst, and accelerated pulse. He soon complains of uneasiness or pain of the abdomen, either confined to one spot, or extending over the whole of it. The pain is sometimes extremely acute; at others, there is merely a feeling of soreness, increased upon the least degree of pressure. The abdomen becomes swollen and tense; all the symptoms of the case rapidly increase, particularly the pain; the very weight of the bed-clothes being often intolerable. To obtain relief, the patient lies upon his back, with his knees and thighs drawn upwards. The pain generally increases towards even-

ing. The least motion of the body causes great suffering, as well as every inclination to evacuate the intestines or the bladder, as also the acts of coughing and sneezing. The countenance of the patient indicates the anguish he suffers. In most instances, the stomach becomes early affected with nausea, followed by vomiting, at first of a bilious fluid, but in violent cases, of a dark, flaky matter, like the black vomit of yellow fever. In the majority of cases, the bowels are constive; sometimes, however, they are affected with purging, griping, and tenesmus; at others, they are nearly natural. The peritoneum covering the fundus of the bladder becoming involved in the disease, there is a constant inclination to pass water, while only a small quantity is discharged at a time. In some cases, the breathing becomes short and laborious. Generally, the skin is hot and dry, and the pulse small, quick, and very frequent. The thirst is greatly increased, the tongue white and dry, and the strength apparently extremely exhausted. All the foregoing symptoms are by no means found united in every case. That which is most frequently wanting, is the increased heat of the surface, the temperature of which is even sometimes below the natural standard. The tumefaction of the abdomen is also occasionally absent, or occurs only in the latter stage of the disease. Hence the only symptom which may be present to point out the existence of the disease, is pain of the abdomen; but even this may be so slight, as to attract attention only when pressure is applied.

As the disease progresses, all the symptoms augment greatly in violence, until finally, an entire cessation of pain takes place suddenly, the pulse increases in frequency and feebleness, a cold, clammy moisture appears on the surface, the extremities become cold, the urine and feces are passed involuntarily, and death quickly ensues.

Inflammation of the peritoneum may assume a chronic form, marked by

continued sensibility or soreness of the abdomen, experienced more particularly when pressure is applied; the belly, after a time, becomes slightly tumid and somewhat tense, especially towards evening. An obscure fluctuation, as of a fluid within the abdomen, is perceived upon percussion, which operation produces pain, as also any sudden jolt or quick motion of the body, as in stumbling, riding, coughing, sneezing. In general, the appetite is unaffected, and digestion goes on regularly. If the peritoneal coat of the stomach be the part inflamed, a disordered stage of that organ takes place, and occasionally, vomiting. Sometimes there is felt a sensation as if a ball were rolling about in the belly, and rising towards the throat. These local symptoms are occasionally accompanied by slight fever towards night, some difficulty of respiration and cough, discolouration of the skin, and when the disease has lasted for some time, dropsy of the lower extremities or of the abdomen. Occasionally, chills and fevers, precisely similar to those of intermittent fever, accompany chronic peritonitis.

This form of the disease most generally terminates fatally. Death may take place in different ways; sometimes the patient is gradually wasted and debilitated, and dies after many weeks of suffering; in other cases, extensive dropsy occurs before death; more frequently, from some accidental irritation, or other cause, the disease becomes all at once of a most acute character, and terminates in death within a few hours.

Peritoneal inflammation may be produced by all the ordinary causes of inflammation, and by external violence affecting the region of the belly, wounds penetrating its cavity, disease of the stomach, bowels, or liver, strangulated hernia, &c. It frequently, also, occurs in females soon after delivery, constituting *puerperal fever*.

In cases of *acute* peritoneal inflammation, we have to contend with a violent and most rapid disease, the gene-

ral result of which, when not combated, at its very commencement, by the most active remedies, is in death. As early, therefore, as possible, after a patient is seized with pain, or tenderness of the abdomen, particularly if this has been preceded by a violent chill, a vein should be opened in the arm, and a quantity of blood drawn off, proportioned to the degree of pain, the hardness of the pulse, and the age and strength of the patient. In many cases, the contracted pulse, general symptoms of apparent exhaustion, and trifling degree of heat of the surface, would be apt to mislead an inexperienced physician, and deter him from bleeding, even to a very trifling extent; but the pain of the abdomen must be our chief guide in this disease for the use of blood-letting. If this be considerable, the safety of the patient will depend upon the free detraction of blood during the first hours of the attack. It should always be carried to such an extent as to remove, or considerably reduce that symptom. After the first bleeding from the arm, if the pain or soreness of the abdomen should continue, or recur at any period of the disease, the free application of leeches over the belly, is an all-important remedy—the discharge of blood from the leech-bites being promoted by warm fomentations.

After the general and local symptoms have been considerably reduced by the use of the lancet and leeches, fomentations to the surface of the abdomen, by means of flannel cloths steeped in warm water, and frequently renewed, is a measure from which much good will often be derived. When, however, the season is warm, the skin dry, and no decided tendency to sinking of the system is present, the application of cold water to the abdomen will be productive of more decided advantage than warm fomentations. Should the patient, however, experience a sensation of uneasiness from the use of cold, or become chilly, it should be at once discontinued, and the warm fomentations applied.

Of the propriety of blisters in peritoneal inflammation, there can be no doubt. They should be resorted to, however, only after the force of the disease has been subdued by bleeding and leeching; at this period of the case, they will seldom fail in removing the remaining local symptoms and completing the cure.

In regard to the use of purgatives in this disease, some difference of opinion exists among physicians. During the acute stage of the disease, we should advise that the bowels be kept regular by occasional doses of castor oil, and purgative injections. After the free use of blood-letting, however, a full dose of calomel may be administered, and followed after a short interval by castor oil, or a solution of the sulphate of magnesia. A very good prescription in these cases, after the use of calomel, is sulphate of magnesia, one ounce and a half; lemon-juice, two drachms; sugar, four drachms, and boiling water, twelve ounces; the dose of which is a tablespoonful every two hours.

The warm bath is an admirable remedy in many cases of peritoneal inflammation. At the period of the disease when we have directed a resort to blisters, previous to their application, it will often be found peculiarly beneficial; or in mild cases, attended with a decreased temperature of the skin, it may be resorted to in the first period of the attack, and it is then an excellent preparative for the other remedies.

When the disease appears to be rapidly verging to a chronic form, in conjunction with the warm bath and blisters, the Dover's powders, or small doses of calomel, ipecacuanha and opium, with or without the addition of nitre, may be administered, and often they will be found to produce a rapid abatement of all the remaining symptoms. We may give one grain of calomel and ipecacuanha, and a quarter of a grain of opium, with, if thought proper, five or six grains of nitre, every three hours.

The spirits of turpentine, in doses of from half a drachm to a drachm, has been strongly recommended as a remedy in puerperal fever; it appears to us, however, to be of very doubtful propriety in this disease; at any rate, it should not be given until after copious depletion by the lancet and leeches.

Throughout the whole disease, the patient should be kept in a state of as perfect rest as possible; he should be debarred from every species of food, and to quench his thirst, should be allowed only small quantities of toast, barley, or gum water.

In regard to the treatment of chronic peritonitis, the remedies are, leeches to the abdomen, in numbers proportionate to the extent of the local symptoms; the warm or vapour bath; repeated blisters to the surface of the belly; calomel purgatives, followed by injections; and the prescription of ipecacuanha, opium and calomel, as directed above. The diet of the patient should be moderate, light and unirritating, and a state of complete rest should be enjoined upon him.

INFLAMMATION OF THE KIDNEYS.

Inflammation of the kidneys is marked by heat, uneasiness, and a dull or acute pain about the loins, with often a dull pain in the thigh of one or other side, and sometimes considerable stupor. The urine is at first clear, and afterwards of a reddish colour, often bloody, and voided frequently, and in small quantities at a time. The urine is generally coagulable by heat. The disease is often attended with vomiting, costiveness, difficulty of breathing, and cold extremities. There is a painful sense of uneasiness when the patient is sitting upright, or standing; the easiest position being that of lying on the side affected. If the inflammation of the kidney be severe, or occur in a broken-down constitution, it most commonly gives rise to more or less dropsy, either externally, or of the abdomen. In some cases, the symptoms of apoplexy are suddenly induced, and terminate rapidly the life of the patient.

Inflammation of the kidneys may be induced by cold; by habits of intemperance; by the use of powerful diuretics, as spirits of turpentine, cantharides, &c.; by contusions or sprains of the back or loins; gravel; violent or long-continued riding, &c.

It is all important to detect the inflamed condition of the kidneys, and apply the proper remedies for its removal at as early a period as possible; for if neglected or mismanaged, an incurable disorganization of the kidneys, terminating sooner or later in death, may be induced. When the local symptoms are severe, the patient young, and possessed of a considerable degree of strength, a copious bleeding from the arm, followed by cups or leeches over the kidneys, should be at once resorted to, and repeated until the disease is removed. When the symptoms are less intense, and the patient debilitated, local bleeding alone should be employed. The use of the warm bath, or fomentations to the loins, constitute an important remedy, after blood-letting, and should be repeated daily. A mild laxative, as an ounce of castor oil, or a solution of one ounce of Glauber's salt in eight ounces of warm water, with the addition of one drachm of lemon-juice, in the dose of a table-spoonful every two hours, should be given, so as to keep the bowels regularly open, with frequent emollient injections of flaxseed-tea, infusion of slippery elm or thin starch.

The patient should make use plentifully of thin gum or barley water, or flaxseed-tea, and abstain from all solid and irritating food, and stimulating drinks. In case of violent pain continuing after the bleeding, a grain of opium, or two of hyosciamus may be administered at bed-time. A decoction of the dried leaves of the peach tree has been said, when taken to the amount of a pint a day, in many cases, to produce considerable relief.

If the disease become chronic, the insertion of an issue or seton at the loins, and internally twenty to thirty

drops of balsam copaiba, or half a drachm to a drachm of uva ursi, three times a day, will be advisable.

INFLAMMATION OF THE URINARY BLADDER.

Inflammation of the bladder is indicated by a sense of tension and pain in the situation of that organ. There is a frequent desire and great difficulty in discharging the urine, often a total suppression, with frequent ineffectual efforts to evacuate the bowels, occasioned by the irritation extending to the rectum. These symptoms are generally accompanied with fever, sickness and vomiting; great anxiety and restlessness: sometimes delirium, coldness of the extremities, and clammy perspiration ensue.

The mucous or lining membrane of the bladder, is likewise occasionally affected with a chronic inflammation; in these cases, there is a dull, uneasy sensation in the part, frequent desire to pass urine, which is generally thick, from being loaded with mucus; sometimes bloody, or, if ulceration of the bladder has taken place, mixed with matter. The coats of the bladder become often, when affected with chronic inflammation, thickened, indurated, and otherwise disorganized, giving to the patient great uneasiness referable to these parts, and causing a constant inclination to urinate, or a total suppression of the urine.

In the acute variety of the disease, the early employment of the lancet, with leeches over the region of the bladder, followed by the warm bath and fomentations, will be required. The bowels should be kept gently open by mild laxatives and emollient injections, as directed in inflammation of the kidneys. The bleeding and leeching should be repeated until the pain and uneasiness of the bladder are subdued. During the disease, the patient should observe a very low, unirritating diet, and make use of some mucilaginous fluid for drink. Any of those mentioned in the preceding article may be employed. If the urine be retained

so as to cause distension of the bladder, it should be drawn off by means of an appropriate instrument. During the treatment, the patient should observe a state of complete rest.

In cases of chronic inflammation of the bladder, leeches will occasionally be required. The bowels should be kept lax by castor oil, or mild injections. The warm bath should be used daily, and warm water, or infusion of the pith of sassafras thrown into the bladder by means of a syringe, two or three times a day. If much pain attend the disease, a dose of the Dover's powders may be given at bed-time. In many cases, great benefit will be derived from the balsam copaiba and uva ursi, as directed in the case of inflamed kidneys. The diet should be the same as in the acute variety of the disease. In both, fermented and distilled liquors are to be carefully avoided.

INFLAMMATION OF THE WOMB.

Inflammation of the womb seldom happens, except in lying-in women. It may occur at different periods, from delivery to the fifth or sixth day, but it sometimes happens later. Like other inflammations, it is ushered in by shivering, followed by great heat, thirst, and a quick hard pulse. Pain is felt in the womb from the beginning, with a sensation of fullness and weight; also a burning heat and throbbing. The exact spot where the pain is felt, varies according to the part of the womb that is inflamed; it may be towards the navel, or over the share-bones, or shooting backwards, or down the thighs; or it may affect the bladder with pain and suppression of the urine, or difficulty of passing it.

The disease is distinguished from after-pains by the constancy of the pain, by the heat and throbbing of the parts affected, and by the pain being much increased when pressure is made over the region of the womb. Inflammation of the womb is induced by difficult or tedious labour, by officious interference during labour, or by wrong methods

of forcing the expulsion of the child and after-birth; by too much strong food or heating drinks; or by exposure to cold. This inflammation requires very prompt and active interference as its progress is very rapid, and its event uncertain and dangerous. If assistance is procured in time, it may be stopped by blood-letting, as well from the arm as by leeches over the region of the womb, a very low diet, diluent drinks, slightly acidulated; with laxative medicines or elysters, and fomentations to the belly. A copious sweat, and a flow of the lochia, with relief from pain, indicate the cessation of the inflammation. But we are not always so successful, for the pain sometimes becomes more acute, with throbbing, and an increase of fever, sickness, delirium and restlessness. In these cases there is risk of mortification; and this is shown to have taken place by a languid pulse, low delirium, and cold clammy sweat. Such termination happens chiefly in bad constitutions, or in such as are much debilitated. When suppuration is to take place, the pulse continues firm, and the throbbing is more violent. The matter is discharged by various outlets; the most favourable of which is the mouth of the womb; but sometimes it is discharged by the rectum, or by an opening in the groin. When the discharge is going on, the strength of the patient is to be supported by nourishing diet; the bowels are to be kept open by gentle laxatives, and bark is to be given. Much attention must at the same time be paid to cleanliness; as well by washing the external parts as by frequent injections of warm water into the vagina.

DROPSY OF THE BRAIN.

Dropsy of the brain is a frequent disease in young persons, and of a very fatal and melancholy termination; or rather, it is to be considered, more properly, the concluding symptoms of a previous disease, which symptoms, from their frequency, from the severity of suffering which they occasion, and

from the hopeless state into which they bring the patient, constitute one of the most dangerous affections to which children are liable. The commencement of the disease is usually marked by a considerable degree of fever, of a remittent type; by thirst, restlessness and vomiting; by flushing of the face; and when the patient is old enough to give an account of his sensations, by very severe pain of the head, which part is always hotter than natural. He utters frequent piercing screams; he appears flushed in the face; there is redness of the eyes, but delirium is less frequently present than we might expect. If these symptoms are not relieved by the remedies employed, they are succeeded by those which more decisively show the presence of water in the ventricles of the brain. The patient is now dull and heavy, has a constant desire to keep the head in a reclining posture, or rolls it about from side to side, or frequently puts up the hand to the head; the breathing is heavy, the pulse intermitting and very slow, the eyes squint and are insensible to the impression of light, the bowels are costive, the urine scanty, and the discharges are made involuntarily; the patient lies in a dozing state, interrupted only by occasional lamentable shrieks. This distressing hopeless state may continue for several weeks. Towards the fatal termination, the pulse becomes again exceedingly frequent; feverish heat of the skin, and flushing of the face, again prevail; while convulsions of the whole frame, or of some particular muscles, or palsy of one half of the body, give notice of the near approach of death. From the preceding description of symptoms, it appears that the commencement of the disease is of an inflammatory nature; and the subsequent symptoms, combined with the knowledge acquired by examination of the bodies of those who have died of the disease, show that there is pressure on the brain, from a watery fluid accumulating in certain parts of it, which, in the healthy state, are free from such accumulation.

The delicacy of the constitution in childhood, renders it liable to be affected by a very great variety of causes, which grown-up people are exposed to with impunity; and certain circumstances, peculiar to early life, increase the number of these hurtful agents. The extreme readiness with which the stomach and bowels of children are put out of order, and the rapidity with which the brain sympathizes in all the acute affections of these organs; the susceptibility of children to all mental emotions, and the relative largeness of their heads, with the quantity of blood sent to the head in order to its speedy growth, all give a tendency to the occurrence of disease in the brain and its appendages. There are certain temperaments and hereditary peculiarities which seem to predispose to dropsy in the head. Children of a delicate make, of ingenious talents and amiable character, whose early advances in knowledge and in virtue give the fairest hopes of mature and distinguished excellence, are too often those, who, from this fatal disorder, disappoint the fondest hopes of their friends. An eruption behind the ears too suddenly dried up, an occasional irregularity in diet, indigestible or stimulating food, neglect of the bowels, a fall or blow upon the head, teething, and many other circumstances, are exciting causes of the disease. A scrofulous habit seems to be a very common predisposing cause of dropsy in the head.

In the acute or commencing stage, we are to use with great diligence the means for lessening inflammatory action in the brain. Leeches are to be applied to the head, purging is to be actively employed, by the administration of frequent doses of calomel, followed by castor oil or infusion of senna, and the head and temples kept constantly enveloped in cloths wet with cold water, or cold vinegar and water. At the same time, the feet should be immersed in hot water, after which, sinapisms may be applied to the ankles. If there is any appearance of stupor or palsy coming on, the head must be

shaved and a large blister applied. When the disease has got to the stage where there is reason to fear that the effusion of water has actually taken place, many remedies have been recommended; but, unhappily, their use is seldom productive of any very decided benefit. Mercury has been pushed to a great extent, both by friction, and in the form of calomel. A succession of blisters, or an issue has also been tried. To relieve the pain and restlessness, opiates may be cautiously given, remembering the danger that there is, of increasing, by their use, the costiveness and inclination to stupor.

We must not be induced, by the supposed incurable nature of dropsy in the brain, to be negligent in the use of remedies, when the symptoms of that disease appear. It is an undoubted fact, that children have been affected with head-ache, with stupor, dilated pupils, squinting, and every bad symptom appertaining to the disease, and yet, by very active treatment, especially by a judicious use of leeches, by blisters, and by active purging, they have entirely recovered. All our knowledge of the brain, both in its healthy and morbid state, forbids us to suppose, that when water is actually effused in such quantity as to press upon the organ, and produce the foregoing symptoms, it can be carried away by absorption; and, therefore, though we can not say that dropsy in the head has certainly been cured, we may nevertheless assert with truth, that symptoms strongly resembling those which usually accompany the disease, have been entirely removed by appropriate remedies. In such cases, our most rational hope is from a judicious course of bleeding by leeches, blistering and purging; and the quantity and activity of the purgatives necessary in such cases is truly astonishing. From three to five grains of calomel may be given, night and morning, for two or three days; this is to be worked off by a full dose of castor oil, senna, or tamarinds and senna, or by a dose of Epsom salt.

When one or two children of a fami-

ly have died of dropsy in the brain, it naturally begets a very anxious solicitude about the rest; and it is found to be a very useful precaution, to begin at a very early age, to make an issue in the neck or other convenient place. Many families have brought safely up to manhood, numerous children, who in all probability would have died in infancy, had not this expedient been resorted to. Great care should be taken of the health of ingenious, delicate, and sensible children. If their parents' fortune admit of it, no expense should be spared in procuring for them the most virtuous, well-informed, and sensible persons that can be procured, for directing their education, and watching over their minds; their treatment should be tender, yet firm and consistent; no harsh usage, and especially no blows about the head, should be permitted; and every indulgence that will not injure the health, the temper, or the character, should be freely allowed them. In particular should their diet be cautiously attended to, and a due proportion of the day be devoted to active exercise in the open air. In such children, it is a more prudent course to entice them from a close application to their studies, than to attempt to force their mental powers to too constant and early efforts.

CONVULSIONS IN INFANTS.

The greater degree of irritability of the infantile constitution, renders the muscular system at that period of life peculiarly liable to be thrown into irregular or morbid action from the impression of a variety of irritating causes, which at a later age would produce little or no disturbance in the system.

The period of infancy at which convulsions are most liable to occur, is previously to the completion of the first dentition, that is to say, from birth until between the second and third year.

The causes productive of convulsions in the infantile state are extremely numerous; we shall, therefore, confine ourselves to the most common, and those which render most genera

a modification of the treatment necessary. These are, retension of the meconium during the first days after birth; an unhealthy condition of the milk of the mother or nurse; overloading the stomach of the infant; improper food; various irritations of the bowels; costiveness; worms; the impression of cold and damp upon the surface; a vitiated condition of the air; want of cleanliness; the sudden repulsion of certain eruptions of the skin; difficult dentition; fright, and various emotions suddenly excited; every circumstance producing an increased determination of blood to, or an irritated state of the vessels of the brain, &c. Convulsions among children are said, at certain periods, to have occurred epidemically.

The following symptoms are enumerated as sometimes preceding the attack of convulsions. The child lies in a state intermediate between sleeping and waking; he scarcely enjoys, for one hour out of the twenty-four, a true sleep; his eyes remain either constantly open or are but half closed, the pupil being turned upwards, and concealed under the upper eye-lid; the respiration is unequal; he moans frequently, or as it occasionally happens, cries almost continually; frequently he is agitated by momentary starts, which occur without any manifest cause, or from a very slight one; in these moments, the limbs become stiff, and the fingers are separated from each other, or are firmly clenched.

The above state of things, which is occasionally succeeded by vomiting and purging, has been denominated internal convulsions, or inward fits; it may endure for a longer or shorter period, and is not invariably followed by true convulsions.

Symptoms like those we have now recited, have been supposed to constitute a particular variety of convulsions, of a very formidable character. Dr. Armstrong has written very elaborately upon their nature and treatment, but has certainly attached to them much more importance than the nature of the complaint demands; they appear, in

every instance, to be the effect of a deranged or overloaded condition of the digestive organs, and will seldom occur where proper attention is paid to the nature and regulation of the diet of the infant. Though the above symptoms do very frequently occur in young children, and are occasionally the prelude to convulsions, yet, in general, it will be found that the latter occur suddenly, without any premonitory symptoms.

Convulsions vary much in their degree and duration; generally, the child is suddenly seized with spasm of the muscles of the limbs, which are violently agitated to and fro; the fists are clenched; the body bent back; the features distorted; the eye-lids open, the pupils dilated; the eyes either fixed in the socket, or rolled about in every direction; the face is either pale or livid. The spasms sometimes, in place of being general, are confined to one particular set of muscles, as those of the face, or limbs; sometimes one side of the body only is affected; frequently, when the convulsions are universal one side is more strongly affected than the other. Convulsions may prove very suddenly fatal; sometimes, after the fit has continued for a few minutes, it ceases, and does not again return. In other cases, after a greater or less interval, they return frequently during the day, and they may continue thus to recur for many days, or even weeks. The duration of the paroxysms, as well as the interval of their recurrence, varies from a few minutes to an hour or more. In general, the danger of convulsions is in proportion to the violence and obstinacy of the paroxysms and the shortness of the intervals between their repetition. When the convulsions are light, of short duration, and the infant returns, immediately after they have ceased, to his ordinary state of health, is cheerful and playful, we may conclude that the disease has been produced by some slight irritation, and is without danger; but when, on the contrary, the paroxysms are of some length, or increase instead of diminish

ing in violence, when they succeed each other with rapidity, or when they commence at first with an extreme degree of violence, without the most prompt, active and judicious treatment, we have just reason to fear for the life of the little patient. Even though the convulsions themselves may not cut short his days, yet when they are mismanaged, violent, or allowed frequently to return, the brain finally becomes permanently affected, and the child is seized with paralysis; becomes affected with fatuity, dropsy, or other disease of the brain; which, after prolonging his sufferings, finally terminates his life. We do not wish it to be understood, however, that these effects are produced by the convulsions themselves; they, on the contrary, invariably depend upon the continuance of the same cause by which the convulsions are produced. Convulsions are always, however, a disease of sufficient magnitude to demand the close attention of the practitioner, that he may be enabled to put as speedy a stop as possible to the paroxysm which is present, and to prevent the possibility of their future recurrence.

In the cure of every kind of convulsions, the first thing to be attended to is the removal, if possible, of the cause which has produced the disease. This must be ascertained by a close investigation of the state of the circulation, and of the brain; the age of the patient; the condition of the skin, gums, tongue, discharges, and all the circumstances connected with the attack; and an interrogation of the nurse or parents in relation to the diet, clothing, &c. of the infant.

If, from the result of this examination, we have cause to believe that the disease has originated from a retention of the meconium in very young infants, or from costiveness or a morbid condition of the contents of the bowels, or from worms in those more advanced in age, of course the offending substances must be removed by purgatives or injections, according to circumstances.

If the convulsions have been produced by repelled eruptions, these must be solicited to appear by the warm bath and stimulants to the surface; if from difficult dentition, the irritation produced by the protruding tooth must be removed by a free incision of the gums; if from an undue determination to, or an excited state of the vessels of the brain, by the abstraction of blood from the arm, leeches and cold applications to the head, purgatives, and all the means which have a tendency to unload the vessels of that organ.

There are many cases, however, where it is impossible to determine with certainty the exact nature of the cause by which the convulsions have been produced, or by which they are kept up; and others, where the mere removal of the original irritating cause is not sufficient to suspend the disease: and hence some general remarks will now be made on certain remedies, many of which are more or less adapted to every case of convulsions.

Bleeding. In those instances in which the face is tumid and flushed; where the action of the arteries, particularly about the head, is increased; the eyes red and swollen; and the head hot, indicating a determination of blood to, and an irritation of the brain; from whatever cause the convulsions may have been primarily caused, we should immediately open a vein and remove a quantity of blood, proportionate to the symptoms of the case. The lancet will, in these cases, whenever blood can be obtained from a vein of sufficient size, be preferable to leeches, because producing a more prompt effect; where, however, as is sometimes the case, a vein of sufficient size can not be opened, and in cases in which the symptoms are less violent, or subsequent to general bleeding, when this has failed in subduing the disease, leeches may be resorted to. They should be applied about the head and neck; or perhaps what is better, one or both temporal arteries may be divided under the same circumstances as are above referred to

Subsequently shaving off the hair, and applying cold to the head, will be productive of benefit, and aid the effects of the other remedies.

It is not merely, however, in those instances where increased arterial action is to be reduced, or extensive congestion to be removed, that bleeding is beneficial; we are to recollect, that in all spasmodic and convulsive diseases arising from irritation, or where there is nothing present to forbid its use, the lancet is one of our best, most certain and most manageable antispasmodics. Caution and judgment, however, are necessary in its employment, as well in regard to the particular circumstances under which it is proper, as to the extent to which it is necessary to carry it.

Purgatives. We have already stated, that, whenever there exists any offending substance in the bowels, this must as quickly as possible be removed. Purgatives are the best means for effecting this, and there are few cases of the disease in which they are not indicated; there being few in which convulsions, if not produced, are not at least kept up by intestinal irritation. In mild cases, or in very young children, castor oil and mild injections should be preferred; but in every instance, occurring in older patients, and where the discharges from the bowels are vitiated, as well as in all cases in which the disease is of considerable violence, a dose of calomel, proportioned to the age of the child, should be administered and followed by castor oil, or by purgative injections. The repetition of the purgative is to be determined by the effects produced from the previous dose.

Not only with the view of removing irritating substances from the bowels, but where the disease has been produced or kept up by cerebral determination, purgatives are also important and even indispensable remedies.

The warm bath. There are but few cases of convulsions to which this remedy, when properly managed, is not applicable. Where there is any deter-

mination to the brain or much arterial excitement, it must always, however, be preceded by the evacuation of blood. The child should be immersed into the bath to the neck, and retained there for five or ten minutes; after which he should be taken out of the water and enveloped in a soft dry flannel. This remedy acts by equalizing excitement, relaxing spasmodic action; and if the complaint has been produced by any impression upon the skin, the bath operates beneficially by renewing the healthy functions of that organ.

Mustard poultices. After the patient is removed from the warm bath, mustard poultices to the extremities have a considerable tendency, by the irritation they there create, to lessen that of the brain, and thus to weaken or suspend the convulsive action of the muscles; they should seldom be neglected; in violent cases, never. They may be applied to the wrists as well as the ankles, and often they will be found more efficacious when applied over the stomach. They should be kept on for a half hour or even longer. They are preferable to blisters, because their operation is more prompt and they do not leave behind them a raw surface, which in infants is sometimes found troublesome and difficult to heal. A variety of stimulating liniments to the surface and along the spine are also recommended by various writers; they no doubt, in many cases, are very beneficial; and where mustard poultices are not thought necessary, or even in addition to these, they may be employed.

Blisters. Where a considerable tendency to cerebral irritation exists, giving us cause to fear a repetition of the convulsions, a blister to the nape of the neck will be a proper application, and under these circumstances should invariably be directed. When the convulsions have succeeded to the disappearance of eruptions behind the ears of children, applying small blisters or the tartar emetic ointment to this part will be proper.

Emetics. When the cause produc-

ing the convulsions is ascertained to be some irritating substance contained in the stomach, or where they have arisen from repelled eruptions, emetics will be called for. *Ipecacuanha* will be the most proper article. But where there exists any considerable affection of the brain, they are not to be employed, or at least not until after the free use of the lancet.

Opium and antispasmodics. These articles, but more especially the former, are not merely improper, but absolutely injurious, in every instance where there is much determination to the brain, or considerable arterial excitement; but where this is not the case, and the paroxysms of the disease appear to be kept up by continued irritation of the gums, after the free division of the latter, the use of bleeding, active purgatives and the warm bath, an anodyne injection, composed of thin starch and a few drops of laudanum, will have occasionally a very excellent effect in quieting the irritation and suspending the convulsions. Even in cases where the symptoms call for pretty active bleeding, after the evacuation of blood and active purging have been carried to a proper extent, the convulsions still continuing, an anodyne injection may be resorted to; this practice, however, it is to be recollected, is only proper in violent cases, and where the other remedies have been previously fully tried without complete success. Under the same circumstances in which anodyne injections are proper, a watery solution of *assa-fœtida* by injection or by the mouth may be administered.

Turpentine. Dr. Copland of London states, that, in several cases, he has witnessed the beneficial effects of turpentine, when given as a remedy in the convulsions of children; especially when the disease is connected with a deranged condition of the digestive organs. In such cases, the doctor gives it so as to produce by it a purgative effect. When given by the mouth, the turpentine should be combined with an equal quantity of castor oil, a tea-spoonful of which mixture

may be given for a dose. In very violent cases of convulsions, an injection of one drachm of turpentine, one ounce of sweet oil, and five or six ounces of thin starch, will often be found beneficial.

Subsequently to an attack of convulsions, measures should be taken to prevent their return in future. If the infant has been placed under the care of a nurse, it is necessary to ascertain that her milk is perfectly good, that she is strictly temperate, and cleanly in her person, not given to violent paroxysms of passion, nor suffering under some corroding care or deep depression of mind, and that she pays all proper attention to the diet, clothing, cleanliness and exercise of the infant. If such be not the case, she should be at once deprived of her charge.

It is all-important that the diet of the child be perfectly wholesome, and of a quality adapted to the state of the digestive organs. The breast-milk of a healthy nurse, or if the child be weaned, cow's milk, diluted with water and sweetened with loaf-sugar; preparations of stale bread, rice, arrow-root, or tapioca; thin chicken or mutton broth, or beef tea, will all be proper under different circumstances. Cleanliness of the infant's person should be carefully attended to; hence the daily use of the warm bath is an important measure. The child should be allowed to breathe constantly a pure and free air; indeed, all the rules laid down in a former part of this work for the treatment of infants and young children, should be cautiously attended to.

APOPLEXY.

Apoplexy, or, as it is popularly termed, an apoplectic fit, is a sudden suspension of the powers of sense and motion, from disease affecting some portion of the brain; the respiration being generally slow and laborious, and frequently attended with a stertorous noise.

The approach of apoplexy is often preceded by a dull pain in the head,

accompanied by a sense of heaviness, giddiness, or drowsiness; by frequent fits of nightmare; fullness and redness of the face and eyes; obscurity of sight; bleeding from the nose; faltering in the speech; ringing in the ears, and loss of memory: but its attack is most frequently sudden, and the patient falls to the ground with scarcely any warning of the occurrence of so serious an affection, and lies as if in a deep sleep, from which he can not be roused. In this state, his breathing is slow and laborious, and generally accompanied by stertor; the face is dark, red and tumid; the veins of the head and neck are distended; the head is hot, and often in a copious perspiration; the eyes are prominent, bloodshot, sometimes half open, but more frequently quite closed; and a frothy saliva is often excreted from the mouth. The pulse is at first regular, strong, full, and slow, but soon becomes weaker, frequent, irregular, and intermitting. The pupils of the eyes are commonly dilated, but they are now and then much contracted. The duration of a fit of apoplexy is various; but it generally lasts from eight to twenty-four hours, and occasionally for thirty-six hours, or even longer.

There are two varieties of apoplexy, the distinguishing phenomena of which are in general clearly marked. The one being attended with a hard, full pulse, flushed countenance, and stertorous breathing; the other with a feeble pulse, and pale countenance. The former usually occurs in persons of a full plethoric habit, and possessed of considerable energy and strength of constitution; the latter, for the most part, occurs in the old, phlegmatic and feeble.

The most common immediate cause of apoplexy is pressure on the brain, either from an effusion of blood or serum, or from a distention of the vessels of the brain, by an accumulation of blood in them, independently of effusion.

Whatever operates in determining a great quantity of blood to the head, or

in impeding a free return from it, may produce excessive distention or effusion within the cranium, and is, therefore, to be considered as an exciting cause of apoplexy: such as violent passions of the mind, immoderate exercise, intense study, fits of intemperance, excessive straining, ligatures about the neck, the suppression of accustomed evacuations, as piles, &c., unrestrained indulgence of the appetite, and exposure to sudden and great heat, or to excessive cold.

The disease may occur at any age, but is most frequent about the middle, or towards the decline of life, especially in persons of a plethoric habit, who have short necks, and who are indolent, and indulge much in eating and drinking.

Apoplexy is distinguished from epilepsy, or falling sickness, by the presence of convulsions and contortions of the limbs in the latter, by the comparative shortness of the fit, and the greater facility with which the patient is roused. A state of deep intoxication, which in its leading phenomena bears a considerable resemblance to an apoplectic fit, may be distinguished from the latter by the breath being in general tainted with the intoxicating liquor, and the patient being capable of being roused in some degree by shouting in his ear, or by applying a strong stimulant to the nostrils.

Although, in medical works, it has been usual to divide this disease into the two varieties of sanguineous and serous; the former arising from the extravasation of blood, the latter from the effusion of serum; yet it is very doubtful whether these distinctions have any real foundation in experience, or observation. In treating of the disease, it is, however, unquestionably proper and necessary to attend to the following modifications, namely: 1. Apoplexy occurring in the vigorous and plethoric. 2. Apoplexy attacking a constitution infirm by nature, or enfeebled by age, intemperance, previous disease, or excessive exertion.

In the first named variety of the dis

ease, copious blood-letting, both general and local, active purgatives by the mouth and by clysters, and the free application of cold to the head, constitute the most appropriate remedies; but in the second variety, or that occurring in the infirm, or enfeebled, we must be cautious and sparing in the extent to which we employ the lancet, and all other very active depleting measures.

In all cases of the disease, the patient should, if possible, be immediately carried into a spacious apartment, into which cool air may be freely admitted; his head and shoulders should be placed in an upright position; all ligatures, especially those about the neck, chest and abdomen, must be speedily removed; and his legs and feet should be placed in warm water, and rubbed with some stimulating liniment, as the volatile liniment, or the decoction of turpentine and cantharides, and afterwards mustard poultices should be put on the ankles.

When the disease occurs in a full habit, when it has been preceded by marks of increased action in the vessels of the brain, or the attack is accompanied by an evident congestion in the vessels of that organ, a pint or two of blood should be immediately drawn from the arm or jugular vein, and a dozen leeches applied to the temples, or what is preferable, the patient should be freely cupped on the back of the neck. Immediately subsequent to these operations, a copious purgative clyster, composed of one ounce of Glauber salt dissolved in a pint of water, with the addition of a spoonful of sweet oil, should be given; this injection may be quickened by the addition of four ounces of infusion of senna. A very excellent injection is a solution of soap in water, with the addition of common salt. The injection should be followed by active purgatives, administered by the mouth as soon as the patient is able to swallow. The best will be calomel and jalap, or calomel and gamboge, aided in their operation by strong senna tea. The head should, at the same time, be

shaved, and then covered with linen rags wet with cold water, vinegar and water, or with a bladder partly filled with powdered ice.

Unless the first clyster operate well and speedily, it ought to be repeated at once; the same should likewise be observed with regard to the purgative administered by the mouth. In the commencement, the purgative medicine should be repeated every day, and afterwards every second or third day, for some time.

Dr. Baillie, after recommending the treatment above laid down, says, "If the patient should recover by these means, the best plan of management, in order to escape from another attack, is for him to live almost entirely throughout his future life upon vegetable food, and to abstain from wine, spirits, and malt liquors. It will be of considerable advantage to avoid any strong or long-continued exertion of the mind. In a few instances, when the full state of the vessels of the brain had for some time subsided, I have derived considerable advantage from the moderate use of tonic medicines, and more especially of steel."

In the second variety of apoplexy, which is the same disease occurring in an enfeebled constitution, free local bleeding by cupping and leeches will be preferable to that by the lancet. Purgatives are here always of much service. The forms above recommended are proper, though the patient need not take them in so large doses as is advisable in the apoplexy of full habits. Blisters may also be applied, first to the back, and then to the arms or thighs; and when the patient is recovering, a change of air and scene, with the use of mild laxatives and a well regulated, very abstemious, chiefly vegetable diet, and daily gentle exercise, may be resorted to with the prospect of considerable advantage. Much of the treatment recommended for *indigestion*, will be useful here.

They who, from their constitutional make, are disposed to the present malady, ought to be very attentive in ob-

serving a mild, spare vegetable diet, and regular habits; they should rise and retire early, take no strong drink, especially avoiding malt liquors, keep an open state of the bowels, and use a great deal of active exercise in the open air. A seton in the nape of the neck, or between the shoulders, is often a valuable preventive, and highly merits the attention of those who have had one attack of apoplexy. The same may be said also of daily frictions of the skin with a flesh-brush.

In recovering from an attack of apoplexy, strict attention to diet and regimen is of the utmost moment, and we shall, therefore, conclude this article with some of the most important rules relating to these points. It has been correctly remarked, that the recovery of health and strength after the disorder has been in a measure subdued, requires (and often for a long period of time) unceasing attention to minutiae.

1. Having the head shaved frequently, and washing it daily with cold water, are practices worthy of attention, by such as have recovered from, as well as those predisposed to an attack of apoplexy. Frequently rubbing the head with a flesh-brush, dipped in cold water, is very beneficial. The scurf on the skin is thus got rid of, a proper perspiration promoted, and the head can be kept much cooler than when these measures are neglected.

2. As soon as it is practicable, it is highly expedient to use a shower-bath of cold or tepid water, at least occasionally, as the means of diminishing the amount of blood circulating in the vessels of the head.

3. A strong flesh-brush ought to be applied for ten minutes, night and morning, to the feet and arms, with the view of giving tone to the skin and muscles, and augmenting the *quantum* of daily exercise. Rubbing the limbs, and patting them by the hands of a servant, in particular the feet and legs with the stockings on, greatly tend to the increase of muscular strength, and diminishes the tendency to apoplexy by

causing the blood to be sent in greater amount to the extremities.

4. The breathing of pure air is of the utmost importance to health; and for that purpose, the improved mode of ventilation, by pulling down the upper sashes, and having a wooden conductor, by which the air is made to strike against the ceiling, cannot be too strongly recommended. By this means, the room occupied by the patient may be kept constantly cool in the summer, and in the winter an occasional recourse to it will prevent any stagnation of air in the apartment, and carry off superfluous heat.

5. The clothing should be kept loose, especially about the neck, the wrists, and the knees, and should be light for the sake of easy conveyance. It is not difficult, by using flannel, to combine warmth with lightness.

6. In regard to diet, at breakfast, a moderate quantity of milk may be taken, if it agrees with the patient, with biscuit, or rusks, or stale or toasted bread, which are both more agreeable to the stomach, and digest better, than common bread. If costive, toasted brown bread, especially with a little rye flour in its composition, will be preferable. Oat-meal gruel might also be occasionally taken; or weak tea for a change. No butter nor cheese is on any account to be taken.

Luncheons ought to be entirely given up. For dinner, (about two o'clock,) take a single plateful of light soup or broth, and then a moderate quantity of plain pudding, made of pearl barley or rice. Rice or barley affords excellent nourishment; when ground into meal, it may be made into cakes prepared with milk, which are more wholesome than fermented bread. A little fowl or mutton is allowable once or twice a week for a change. The more wholesome fruits, as strawberries, gooseberries, grapes, currants, peaches and oranges, may be taken, but never after the stomach is filled. Stone fruits are to be avoided, excepting peaches. Remember to eat slowly, and to masticate well what is eaten.

For drink, whey or toast and water, carefully made, is to be preferred. Artificial mineral water likewise may be occasionally taken; but no malt liquor, nor wine, nor spirits, even with water.

A late tea may be taken, to prevent the necessity of supper, which ought to be entirely given up.

7. With respect to sleeping, a mattress is to be preferred; the head should be raised, and very lightly or not at all covered; the pillow to be stuffed with horse hair instead of feathers. A habit of retiring to bed early, and rising very early, ought to be studiously cultivated.

8. Daily exercise is of the first importance, more particularly if the patient be of a full habit. Walking much on level ground, surveying the beauties of nature, or directing the operations in the labours of gardening, are practices highly advisable. The management of a green-house, and attention to the culture of plants, are excellent means of occupation. These should be alternated with gentle horse exercise. In regard to "*in-door amusements*," no game of chance is to be recommended, from the anxiety it occasions, &c. Books of a light and amusing description are proper, and the company of the young and lively ought to be cultivated. Daily friction and percussion must not be forgotten.

9. Quit large towns and cities for the open elevated country.

On the whole it is hardly possible, where the constitution is not gone, or the frame in a state of absolute decay, that a careful attention to all these particulars, will not be productive of the most essential benefit.

PALSY.

Palsy is a diminution, or total loss of the power of motion and of sensibility in certain parts of the body, but without that complete stupor, or oppressive sleep witnessed in apoplexy. Sometimes the powers of voluntary motion alone are affected in any considerable degree, while those of sensation are only rendered a little more obtuse

than ordinary; at other times, however, both motion and sensation are equally destroyed, and sometimes several of the faculties of the mind are diminished in acuteness, or their action is entirely suspended, though the mental powers are never so completely lost as in apoplexy.

There are three varieties of the disease, the hemiplegic palsy, the paralytic palsy, and the local palsy. In the first, the disease affects only one side of the body; in the second, it is confined to the lower part of the body on both sides: and in the third, to a particular limb.

Palsy usually comes on with a sudden though slight loss of the power of motion in the parts affected, the loss of motion being frequently preceded by a numbness, coldness, and paleness of the part, and sometimes by convulsive twitches in the muscles. In some cases, the loss of motive power, at first partial, increases until it becomes complete; in others it is stationary and partial. When the brain is much affected, the eye and mouth are drawn on one side, the memory and judgment are impaired, and the speech is indistinct and incoherent. If the disease affects the limbs, and has been of long duration, it not only produces a loss of motion and sensibility, but likewise a considerable flaccidity and wasting away in the muscles of the parts affected.

The progress of the disease is uncertain; and depends very much upon the state of the nervous system at the time of the attack. If there be no chronic disease, or other considerable morbid condition of the brain, the patient will sometimes recover entirely from the paralytic attack in a week, or even less; but if the brain, or other portion of the nervous system, be extensively diseased, he recovers only imperfectly; and obtains, perhaps, a thorough or a limited use of the lower limb, while the upper remains immovable; or he is compelled to pass through the remainder of a painful existence with only one half of his body subservient to his will.

The paralytic state of the lower limbs generally depends upon a diseased affection of the spine, in its bones, ligaments, or interior. In such examples, at first nothing more is experienced than a slight numbness in the lower limbs, with an appearance of stiffness or awkwardness in the motion of the muscles; these symptoms increase by degrees; there is a great difficulty in walking, and an inability in preserving the balance of the body; the aid of a staff, or the arm of an assistant, is next demanded; and the urine is often found to flow in a feeble stream, or perhaps involuntarily. The bowels are at first always costive; but as the sphincter of the anus loses its power of contraction, the stools at length pass off involuntarily. The disease may continue for years, and either terminate in recovery, or the patient may at last sink from general exhaustion.

Palsy is frequently the consequence of a fit of apoplexy; and all the causes of apoplexy may give rise to this disease, though no apoplectic fit actually precede it. These causes are compression or rupture of the brain from the effusion of blood, tumours, induration of the membranes, or disease of some portion of the spinal marrow. The circumstances predisposing to palsy are, advanced age, corpulency, fullness and grossness of habit, an inordinate indulgence in wines and fermented liquors, or in rich food, excessive heat, and whatever tends to unduly excite the nervous system.

All its varieties more generally appear in the aged and infirm, than in the young and robust; and the left side is, perhaps, more frequently affected than the right.

As in all other complaints, the treatment proper for this disease will depend on the violence of the symptoms, the age of the patient, and the state of the constitution. If the age of the patient is not far advanced, and his habit full, active bleeding and purging are generally proper in the commencement, and they are particularly indicated when

the head is much affected. In such a state, fourteen or sixteen ounces of blood should be directly taken from the jugular vein, or temporal artery; a purgative of Epsom salt or senna tea being given so as to act freely on the bowels; then quietness should be enjoined, and all exercise of the body prohibited. Plain light vegetable food should be given, and but very little of it. If the first bleeding and purging afford only partial relief, they may be repeated in robust habits, to the same extent without delay, or the first bleeding may be followed by cups to the back of the neck, and cold applications to the scalp, and a large blister between the shoulders; the quantity of blood drawn being always regulated by the strength of the patient, and the degree in which the symptoms approach in their character to those of apoplexy.

But if the age of the patient be considerable, his habit debilitated, and the pulse feeble and intermitting, while little or no stupor or giddiness is present, we shall in general do better to abstain from the use of the lancet, and give the purgative, as above advised, or a pill composed of blue mass five grains, and aloes three grains. The purgative should be repeated once or twice a day, according to its effects, for the first four or five days. Even in the cases here referred to, cups to the head will generally be found beneficial.

If this course be persisted in for a proper length of time, the patient will very frequently entirely recover; but should it not succeed, and the disease proves obstinate, we may try the effects of certain other remedies.

Numerous cases have been cured, or greatly benefitted, by the judicious use of electricity and galvanism, and unless there are symptoms which contraindicate their employment, they should never be neglected, when other remedies fail. They are more likely to be useful in palsy connected with general debility, than when it occurs in full habits. Some physicians recommend galvanism as superior to electricity in palsy. Dr. Bardsley, of Manchester,

says, that he has found it succeed, when the latter has failed.

In weakly habits, warm bathing is sometimes useful, especially the natural warm waters; but in persons who are full of blood, they are much less useful, and should be used with caution.

The leopard's-bane (*arnica montana*) has been a good deal praised by some continental physicians, and is worthy of trial. But the sumach (*rhus toxicodendron*) is, perhaps, much more beneficial. Dr. Alderson, of Hull, employed it with success in twenty-four cases. He began with half a grain or a grain of the powdered leaves three times a day, and gradually increased it to five or six grains, or till he found a sense of tingling to be produced by it in the paralytic part, accompanied with some degree of twitching or convulsive motion of the muscles.

The *nux vomica* is another medicine which has been found useful in some instances. Four grains of the powder may be taken three or four times a day, and increased to sixteen or twenty grains, its effects being carefully watched. It seems of most service in sanguine habits, where there has been a good deal of general strength, and energetic health, after irritation has been allayed, and the pulse brought down to a subdued and temperate state, by means of blood-letting, purgatives, and a mild spare diet. When the head is soon affected by small doses, it is rarely of much use.

The leopard's-bane, sumach, and *nux vomica*, are, it must be recollected, very active medicines, and, therefore, must be employed with the greatest caution.

Turpentine, guaiacum, camphor, mustard, horse-radish, garlic, and other stimulating medicines of the same kind, have commonly been employed in palsy, but are all of very doubtful propriety, and in many cases their use would be decidedly prejudicial.

In palsy of the lower limbs, arising from a disease in the spine, the most

effectual remedy is a large issue, made as near as possible to the diseased part of the spine, and kept open for a great length of time.

If the palsy arises from the use of lead, or exposure to its fumes, the means pointed out under *Painter's colic* must be resorted to, and the palsied arms supported in splints and a sling.

In debilitated subjects, especially after the disease has lasted some time, the diet should be nutritious, but mild, and very moderate in quantity.

HYSTERICIS.

Hysterics consist in a convulsive struggling, alternately remitting and increasing, with a sense of a suffocating ball in the throat, drowsiness, copious discharge of pale urine, rumbling in the bowels, and fickleness of temper.

The hysteric fit often takes place without any previous warning, though generally there are some precursive signs, as yawning, stretching, dejection of spirits, anxiety of mind, sickness at the stomach, palpitation of the heart, and sudden bursts of tears, without any assignable cause. The paroxysm soon succeeds, with a coldness and shivering over the whole body, and frequently with an acute pain on the left side, and a sense of distention, giving the idea of a ball or globe rolling about in the abdomen, and gradually advancing upwards till it gets into the stomach; from thence removing to the throat, it occasions the sensation of an extraneous body lodged there. The disease having arrived at its height, the patient appears threatened with suffocation, she becomes faint, and is affected with stupor and insensibility; whilst, at the same time, the trunk of the body is twisted backward and forward, the limbs are variously agitated, and the fists are closed so firmly, that it is difficult, if not impossible, to open the fingers; wild and irregular actions follow, in alternate fits of laughter, crying, and screaming; incoherent expressions are uttered, and sometimes a most obstinate and distressing fit of hiccup

takes place. The spasms at length abating, a quantity of wind is evacuated upwards, with frequent sighing and sobbing; and the patient, after appearing for some time quite spent, recovers the exercise of sense and motion, without any other feeling than a general soreness, and a pain in the head. It is rarely that an hysteric fit has destroyed life; it has, however, in a few instances, terminated in epilepsy or insanity.

Hysteric affections occur much more frequently in the unmarried than in the married, and most commonly between the age of puberty and that of thirty-five years; and they make their attack oftener about the period of menstruation than at any other time. Women of a delicate habit, and whose nervous system is extremely sensitive, are those most subject to hysterics. The habit which predisposes to their attacks, is acquired by inactivity and a sedentary life, the indulgence of grief, anxiety of mind, late hours, dissipation, a suppression or obstruction of the menstrual flux, excessive evacuations, intemperance, an unchaste life, and the constant use of too stimulating or unnutritious a diet. They are readily excited, in those who are subject to them, by passions of the mind, and by every considerable emotion, especially when the effect of surprise; hence, sudden joy, grief, or fear, is very apt to occasion them. They have also been known to arise from an accidental irritation of the stomach, bowels, or other internal organ, affecting the nervous system sympathetically.

In regard to the treatment of hysterics, this may be divided into that which is proper during the fit, and that demanded in the interval, to prevent its return. During the fit, it will be the safest practice to rouse the patient by applying burnt feathers, assafetida, or smelling salts, to the nose; by rubbing the temples with ether, and by putting the feet into warm water. In obstinate cases, cold water may be dashed over the face and limbs, and a purgative injection administered. A clyster of cold

water alone has been effectual in putting an end to the fit.

If the patient be young, robust, and full of blood, and the disease of recent occurrence, from ten to sixteen ounces of blood may be taken from the arm; but in very weak and delicate constitutions, or where the disease has been of long standing, taking blood from the arm would be often improper. In these cases, however, cups to the temples and back of the neck, and along the back bone, will be found advantageous. Whenever the hysteric fit is very violent, the application of cups to the head, followed by cloths wrung out of cold water, kept constantly applied upon the scalp, and mustard poultices to the extremities, are not to be neglected.

In the intervals of the paroxysms, the object is to restore the healthy action of the stomach and bowels, and to strengthen the whole constitution. Every remote or exciting cause is to be sedulously avoided. Active exercise is to be taken daily in the open air. The diet should consist of light, nourishing food, in moderate quantity. These, with early rising, and cheerful company, are the principal means of invigorating the body and mind, and thus effecting a radical cure of hysterics.

The warm bath, with frictions over the whole surface of the body, will in all cases be useful; a visit to the mineral springs and the cautious use of the waters, are often advantageous.

When hysteric affections are connected with a suppression or obstruction of the menses, the means recommended when speaking of these affections should be adopted.

Anodynes and antispasmodics, as opium, musk, castor, and valerian, together with a long list of tonics, are often had recourse to, in this complaint, but they are all of very doubtful advantage, and often decidedly injurious.

The tincture of meadow saffron has occasionally succeeded in curing obstinate attacks of hysterics; and from its acknowledged power of allaying pain and nervous irritation, it may be considered a valuable remedy in many

cases. Used as a palliative to put an end to the actual fit, a tea-spoonful may be given, in water, and repeated to the second or third time, if necessary; and when employed, in the intervals, with the view of obtaining a radical cure, thirty drops may be given twice a day. In its power of affording present relief, it seems to be superior to assafoetida, or any of the antispasmodics in common use, and much safer than opium. Its use should not be continued for any length of time; in general, not longer than three or four weeks at one time. Cups along the spine, or rubbing this part with an ointment composed of simple cerate and tartar emetic, are often attended with the very best effects.

Regular exercise on horseback, with variety of scene, and early rising, are particularly desirable. The diet of persons subject to hysterics, should always be nourishing, light, and such as is recommended in dyspepsia.

HYPOCHONDRIASIS.

Hypochondriasis, low spirits, or vapours, is a certain state of the mind accompanied with indigestion, wherein the greatest evils are apprehended upon the slightest grounds, and the worst consequences imagined from any unusual feeling even of the slightest kind; and in respect to such apprehensions and feelings, there is always the most obstinate belief and persuasion.

Ancient medical writers supposed this disease to be confined to those particular regions of the abdomen, technically called *hypochondria*, which are situated on the right and left side of that cavity;—whence comes the name of hypochondriasis.

The common symptoms are, loss of or a capricious appetite, a troublesome flatulency in the stomach or bowels, acrid eructations, costiveness, a copious discharge of pale urine, spasmodic pains in various parts of the body, giddiness, dimness of sight, palpitations, general sleeplessness, and often an utter inability of fixing the attention upon any subject of importance, or

engaging in any thing that demands vigour or courage. The mental feelings, and peculiar train of ideas that haunt the imagination and overwhelm the judgment, exhibit an infinite diversity: sometimes the hypochondriac is tormented with a visionary or exaggerated sense of pain, or of some concealed disease; a whimsical dislike of particular persons, places, or things; groundless apprehensions of personal danger, or poverty; a general listlessness and disgust, or an irksomeness and weariness of life. In other instances, the disease is strikingly accompanied with peevishness, and general malevolence; the patients are soon tired with all things; discontented; disquieted, upon every light occasion, or no occasion; often tempted to make way with themselves; they can not die, they will not live; they complain, weep, lament, and think they lead a most miserable life: never was any one so bad.

The whims that are sometimes seriously entertained under this complaint are of the most ludicrous description. A foreign writer makes mention of a baker of Ferrara who thought himself a lump of butter, and durst not sit in the sun or come near the fire, for fear of being melted. The wisest and best of mankind are as open to this affliction as the weakest. The excellent Pascal was at one time so hallucinated with hypochondriacism, as to believe that he was always on the verge of an abyss, into which he was in danger of falling; and under the influence of this terror, he would never sit down till a chair was placed on that side of him on which he thought he saw the pit, and thus proved the floor to be substantial. Rousseau was a perfect hypochondriac; and during a portion of their lives, the same was true of Johnson, Cowper, and Watts.

The chief cause of hypochondriasis may be a strong constitutional predisposition, or the disease may be the consequence of a sedentary life of any kind, especially severe study protracted to a late hour in the night, and rarely

relieved by social intercourse or exercise; debauched, dissolute habits; great excesses in eating and drinking; the immoderate use of mercury; violent purgatives; the suppression of some habitual discharge, or long-continued eruption. The poet Cowper, who was deeply impressed by hypochondriasis for the greater part of his life, was thus afflicted after having had a cutaneous eruption repelled, to which he had been for some time subject.

Congestion, or some peculiar affection (by whatever produced) of one or more of the important organs within the abdomen, is a frequent cause. M. Pinel, a French writer on this disease, of considerable reputation, regards the displacement of the transverse arch of the colon as a powerful and ready cause of hypochondriasis; and M. Esquirol, another distinguished French physician of the present day, has found this displacement to occur in hypochondriacs as frequently as M. Pinel. This displacement sometimes consists in an oblique, and sometimes in a perpendicular direction of the intestine; but no disease of the organization has been found in any instance, and hence the change of place seems to proceed from relaxation and debility alone.

In hypochondriasis, the principal objects of treatment are, to remove the indigestion, to strengthen the body, and to enliven the spirits; and one of the best plans with which we are acquainted, for the fulfilment of these intentions, is, constant exercise and change of place, with a warm bath about thrice a week; early hours, regular meals, and pleasant conversation; the bowels being at the same time carefully regulated by the occasional use of gentle purgatives, and the stomach strengthened by some appropriate tonic medicine. The exercise should be very considerable daily; and of all common modes, that in an open carriage, or on horseback, is the best; this should be combined, if possible, with agreeable company and constant change of air and scene. Indeed, travelling is a powerful remedy in this

disease, since it is often one of the most effectual means in removing indigestion, of strengthening the body, and exhilarating the spirits; and where the patient's circumstances will permit, it ought invariably to be one of the first measures resorted to, as it will undoubtedly be found one of the best. At the same time, a warm bath at 95° or 96° should be taken every other morning; the patient accustoming himself to early rising, and regular meals of nourishing and easily digested food. The bowels are almost always torpid in hypochondriasis, and will, therefore, require constant attention in selecting articles of diet which are of an opening quality, with the occasional employment of medicine. Either of the following pills is very suitable, one or two of which may be taken thrice a week: blue mass, three grains; soap, three grains, and aloes, two grains: or, compound extract of colocynth, three grains; rhubarb, three grains; soap, one grain. The bitter and metallic tonics are generally prescribed in this complaint, but we anticipate from them very little service. The ipecacuanha, however, is often beneficial; it at once invigorates the stomach, relaxes the skin, and favours the natural action of the bowels. It may be taken in the following manner: ipecacuanha, in powder, twenty grains; Castile soap, one drachm; extract of chamomile, one drachm; mix, and divide into forty pills. Take two, twice or thrice a day.

Regular daily friction over the limbs and bowels, with the flesh-brush, is very advisable; and the general diet and regimen should be governed by the same rules as in indigestion.

The sulphate of quinia, in doses of a grain or two, two or three times a day, may prove a useful tonic medicine in a few instances. It is certainly the best way in which bark can be administered. The waters of certain chalybeate springs have also been productive of service in many cases.

For local pain in the head or stomach, the most efficacious means are leeches and blisters, applied to the

neighbourhood of the part affected, or friction with camphorated liniment; or five or ten grains of extract of hemlock, with one grain of ipecacuanha, may be administered as occasion requires, or a few drops of the solution of acetate of morphia.

In regard to the *moral management*, assiduous kindness and consoling conversation produce a deeper effect than they seem to do. The patient should rarely be opposed in the expression of his sentiments, and never with ridicule. A very important object is to gain the patient's confidence, and in order to effect this, we must humour his foibles, and seem to fall in with his views. When he is dwelling upon some imaginary disease, it must be prescribed for, and should his anxiety pass in succession from one complaint to another, they ought all to be prescribed for in their turn, for there is seldom any other way of removing the groundless fears associated with hypochondriacism.

NERVE PANG OR TIC DOULOUREUX.

This is a dreadfully painful affection of the nerves of some portion of the body. It occurs most frequently in the nerves of the face; the nerves of other parts, however, are occasionally its seat. The pain experienced by those afflicted with this malady is of the most acute, distressing, and indescribable kind; it is not continual, but occurs in violent paroxysms, which often make their attack like the sudden and painful shocks of electricity, and vary in duration in different instances.

When tic douloureux occurs in the face, its most common seats are the forehead and temple, or the fore part of the cheek. In the former case, the agonizing pain darts into the inner angle and ball of the eye, and in its progress affects the whole side of the head; in the latter, it strikes towards the mouth and angles of the nose, then backwards to the ear, and sometimes spreads upwards to the forehead.

The causes of this painful affection of the nerves are often involved in

great obscurity; in many cases, however, they are sufficiently evident, and are found to consist in a great derangement of the digestive organs, and general health. Such derangement, we are persuaded, is by far the most frequent cause of tic douloureux. No one will assert that it is not equal to the effect, and the evidences of its existence are very often, perhaps generally, equally apparent.

The nerve pang is distinguished from rheumatism, and toothache, by the agonizing violence of the pain, the shortness of its duration, and the absence of all swelling or inflammation: it is sometimes instantaneously excited, in all its severity, by the slightest touch.

Believing, as we do, that the majority of cases of tic douloureux originate in severe disorder of the digestive organs, we have no doubt, that the best and most successful plan of treatment consists in correcting that disorder, and in invigorating the general habit, by leeches to the stomach, the administration of suitable aperients, alteratives, and tonics, combined with a perpetual blister or an issue, change of air and scene, and a correct diet and regimen. From the accounts which have been published, of cases of the disease which have been successfully treated, it clearly appears, that a very considerable majority of them were cured by the preceding means alone.

Costiveness, or an irregular and disordered condition of the bowels, with furred tongue, and other symptoms of abdominal derangement, very generally precede and accompany the attacks of nerve pang; hence, particular care should be taken to regulate the bowels, by means of a strict and judicious attention to diet, and the occasional use of mild aperients, as well as to restore healthy secretions from all the digestive organs, by a recourse to mercurial and other alteratives, in conjunction with tonics, daily active exercise, the warm bath, frictions of the skin, and a mild unirritating diet. The patient should take, at first every night, and then on alternate nights,

either of the following pills: blue mass, five grains; rhubarb, three grains; ipecacuanha, one grain: or, blue mass, two grains; compound extract of colocynth, two grains: or, blue mass, three grains; soap, five grains; aloes, one grain; and at the same time, after the stomach has been relieved from its state of irritation by leeches and mucilaginous drinks, he may take, three times a day, a grain of sulphate of quinia, and half a grain of ipecacuanha powder, made into a pill with extract of gentian. The dose of sulphate of quinia may be gradually increased to two or three grains, or more, thrice a day, if it be found to agree; and should the purgative pills above directed be found not sufficient to gently move the bowels, two may be taken at a dose, or they may be occasionally omitted for three or four days, and the senna tea, or magnesia and rhubarb substituted. Delicate persons will, for the most part, find the pills agree with them best, and will find an increasing advantage from continuing them regularly, as above directed; but more robust patients will sometimes be greatly benefited by an occasional resort to the saline purgatives. In this, as well as in many other points, the patient must be guided, in some measure, by his own feelings; while he constantly remembers, that the chief objects are, to preserve the bowels in rather a lax condition without teasing and irritating them, or producing too frequent and copious evacuations; to allay internal irritation arising from other causes, and to invigorate the general habit. Together with the preceding remedies, a warm bath at 95° may be advantageously taken, thrice a week, and the painful part freely rubbed occasionally with the camphorated liniment. In most instances, a perpetual blister, or an issue, between the shoulders, or a seton in the nape of the neck, will be found a valuable auxiliary.

The carbonate of iron has lately been strongly recommended as a tonic in this complaint, and if the sulphate

of quinia fail to afford the patient satisfactory relief, it may be changed for the iron, eight or ten grains of which should be taken thrice a day, and gradually increased to one, two, or even three scruples at a dose. It will sit better on the stomach if two or three grains of aromatic powder are taken with each quantity; and, if it confine the bowels, a small proportion of powdered aloes should also be added.

The arsenical solution appears to have been useful in some cases, and may be tried when other medicines fail. The extract of belladonna is also another article which has occasionally succeeded. It is a very active substance, and therefore the patient should begin with a pill containing only half a grain; this may be repeated thrice a day, and the dose should afterwards be gradually increased to one or two grains. Belladonna is unquestionably a valuable anodyne in this disease, and in many instances it may be advisable to employ it simply as such, to mitigate the violence of the pain, while we trust to the administration of some tonic medicine, and a suitable diet and regimen, to effect a perfect and lasting cure.

The sufferer from *tic douloureux* must be impressed with the necessity of constant attention to a correct diet and regimen, and to the regulation of the bowels, whatever medicine be resorted to. Whether, therefore, he take the carbonate of iron, sulphate of quinia, arsenic, or belladonna, he should daily resort to active exercise, in the country, on foot, or horseback; he should retire and rise early; should, if practicable, change the air and scene, and make use of mild, nourishing and digestible food; abandoning at the same time all stimulating drinks. Every medical man, who has seen this disease frequently, is aware, that instances continually occur in which steel, quinine, and arsenic, fail of any curative, or even satisfactory effect, if the patient trusts to either of them alone, while by a judicious diet and regimen the affection has been successfully removed,

with, apparently, very little assistance from any article of the *materia medica*.

The operation of dividing the trunk of the affected nerve is sometimes resorted to, and if the complaint originate in local causes, as from some source of irritation fixed in or near the affected part, and directly irritating the nerve, the operation may frequently be effectual, and the best mode of treatment. But if the affection of the nerve arise from derangement of the digestive functions, as it so frequently does, the operation will generally fall short in affording much relief, and the little advantage gained will not be permanent; sometimes, under such circumstances, it fails altogether. The application of leeches to the seat of the pain will frequently be attended with benefit.

TETANUS.

Tetanus is a violent and extensive contraction of the muscles, attended with tension and rigidity of the parts affected. The excessive contraction of the muscles is kept up, without any intervals of complete relaxation, mostly without any relaxation whatever; but the powers of sensation and intellect are unimpaired. Either the whole or a part of the body may be attacked with this malady. Sometimes only the flexor muscles are affected, when the body is rigidly bent forwards; sometimes only the extensor muscles, when it is as rigidly bent backwards; at other times both sets of muscles are involved, and the body is rigidly erect. When its effects are confined to the muscles of the jaw or throat, it is called locked-jaw.

This disease differs greatly, in different cases, in the intensity of its symptoms, and in the mode in which it makes its attack. Generally speaking, the commencement of the disorder is announced by a sensation of stiffness about the neck, which increasing, the motion of the head becomes painful, and there is a difficulty and pain in swallowing; there is also a severe pain

at the bottom of the breast-bone, darting backwards to the spine; the spasms of all the muscles of the neck become exceedingly violent, and, together with the spasm at the pit of the stomach, recur every ten, fifteen, or twenty minutes. At the same time that the spasms increase, the retraction and rigidity of the muscles affected become stronger, the belly feels as hard and tense as a board, and the body is drawn forward, backward, or to one side, according to the muscles chiefly affected. In extreme cases and the advanced periods of the disease, all the muscles contract so powerfully as to counterbalance the force of each other, and thus hold the head and trunk in a straight, fixed, and immoveable position. The muscular contractions in tetanus are always accompanied with the most excruciating pain, and when the disease arrives at its height, a violent convulsion usually puts an end to the patient's misery.

The most common causes of tetanus are, scratches, punctures, lacerations, or other mechanical injuries. Considerable irritation in the digestive organs seems also sometimes to give rise to this disease. It may likewise be produced by exposure to cold and moisture. It is much more frequent in warm than in temperate climates, and in marshy than in dry, elevated situations. The male sex more frequently suffer than the female; and the robust and vigorous more frequently than the weak.

Tetanus is a dangerous malady, and medical men are not yet agreed respecting the most effectual plan of treating it. It is clear, however, that a principal point is to remove all sources of irritation; and the exhibition of calomel and opium; opium, camphor, and nitre; or opium and ipecacuanha, as in Dover's powder; and mild purgatives of calomel, jalap, and rhubarb, would seem to be the most useful means, when used in conjunction with the warm or cold bath, and blood-letting, as the circumstances of the case point out.

A proper plan in most cases is, to give from one to two grains of opium, and a grain of calomel, made into a pill, with a little mucilage of gum arabic, every three or four hours; with a mild purgative, as castor oil, senna tea, or a solution of Epsom salt, with purgative injections, every morning, or every other morning, allowing, at the same time, a nourishing but unirritating diet. In addition to these means, the cold bath is generally safe when the disease occurs in a hot climate, and is sometimes of great service, especially when it arises from other causes than a wound. It does not, however, appear to be applicable to tetanus arising from wounds, and, in all cases, is only proper when the heat of the body is steadily above the natural standard. It may be repeated, if necessary, every three or four hours. In other cases, the warm bath will be found more beneficial.

The French surgeon-general, Larrey, states, that he found a combination of extract of opium, camphor, nitre, and almond emulsion, the most useful medicine in this disease; and it may therefore be given, if it is thought proper, instead of the calomel and opium recommended above. A grain of extract of opium, ten grains of camphor, and five grains of nitre, may be mixed in a mortar, with an ounce and a half of almond emulsion, and given four or five times a day. Dover's powder is also said to have been useful; it is, no doubt, a valuable medicine in allaying great irritation, and may be taken in this complaint in doses of ten grains, every three or four hours. Instead of the calomel and opium above advised, some practitioners recommend large doses of opium alone, for example, five or ten grains of the substance in its crude state, every three or four hours; and this practice appears to have been sometimes attended with success; but in general, free doses of Dover's powder, or moderate doses of calomel combined with opium should be preferred. It is said that an injection of

the tobacco infusion has been found of great service in several cases.

If the patient be young or of a full habit, especially if he have a wound which is inflamed, swelled, and painful, or if severe febrile symptoms be present, twelve, fourteen or sixteen ounces of blood may be advantageously taken from the arm, and the bleeding may be subsequently repeated.

Frequently the patient is unable to swallow, and then the medicines used must be injected into the rectum.

If tetanus originates from a puncture, or any other kind of wound, it is advisable to soothe the irritation existing in the latter by the use of mild anodyne applications, and, perhaps, there is nothing superior, if equal, to a watery solution of opium. A sufficient quantity of solid opium to cover the wound should be liquefied with a little water, and laid over the surface with a feather or camel's-hair pencil. This is the application made use of by Sir Astley Cooper. In some cases, the use of lunar caustic will also be useful.

The treatment proper for *locked-jaw* is the same as above described; mild aperients, with Dover's powder, or calomel and opium, with a generous diet, and the warm or cold bath according to circumstances, will be found the best remedies. The locked-jaw of infants and very young children, almost invariably arises from irritation seated in the stomach and bowels, and is most successfully treated by the frequent exhibition of mild aperients, as castor oil, calomel and rhubarb, or rhubarb and magnesia, with an occasional purgative clyster. A powder composed of small portions of camphor, ipecacuanha and mucilage of gum arabic, may also be given. Some physicians advise opium to be given, but this medicine so generally and seriously disagrees with infants and young children, that if ever employed, it should be in combination with ipecacuanha, as in Dover's powder, a grain or two of which might be administered to a young child, every three hours, in extreme cases.

HYDROPHOBIA.

Hydrophobia, or dread of water, is that remarkable symptom, which gives its name to a train of painful and distressing phenomena, produced ordinarily by the bite of a mad animal. The same series of morbid phenomena may, however, be produced from other causes; thus, the irritation arising in very excitable constitutions from punctured wounds or contusions; violent affections of the mind; sudden alterations of heat and cold; the sudden suppression of the perspiration of the feet, by washing those parts in cold water, may all produce a train of symptoms identical with those of hydrophobia. The animals whose bite most commonly occasions hydrophobia, are the dog and cat; and they can impart the disease both to man and other animals. It is in the warm season of the year, that hydrophobia most commonly occurs. Although nothing should be said to make people negligent of what may prevent the horrid effects of canine madness, yet it may be right to spare unnecessary alarm to any, by remarking, that the disease is by no means of such frequent occurrence in the human subject, as many, judging from exaggerated reports, would imagine; and that, out of many persons who are bitten by rabid dogs, but very few become affected with the disease. The bite of a mad dog may not pierce the skin, or the teeth may be dried and cleaned in passing through the clothes, or the saliva may have been entirely expended by attempts at biting other men or animals; or from some peculiarity of constitution, even a person who has been bitten in apparently the most favourable manner for producing the disease, may remain free from it. A remarkable instance of this is given by Mr. Hunter, who relates, that of twenty persons who were bitten by the same dog, only one was seized with hydrophobia. When the popular terror is excited, every dog, whether mad or not, is supposed to be so, when he

shows any signs of anger; but although such dogs bite, they do not always or very generally inflict a dangerous wound.

The time which elapses between the infliction of the wound and the appearance of the disease is various, and is in some cases astonishingly long; instances, though very rare, have been recorded where a year has elapsed; but from six weeks to two months is a period by no means uncommon.

The symptoms of hydrophobia are the following: a painful sensation is first experienced in the bitten part, then there ensue uneasiness, restlessness, heaviness, a desire to be alone, sudden starting, pain, spasms, disturbed sleep, and frightful dreams. These symptoms increase, pains dart from the wounded place to the throat, with a sensation of choking, and a horror and dread at the sight of liquids. The person can swallow solids, but any thing in a fluid form causes him to start back with horror; and the most painful convulsions are excited by any application of it to his throat or lips. In the course of the disease, vomiting comes on, with much fever, great thirst, dryness and roughness of the tongue, hoarseness, and a continual discharge of saliva. There is great watchfulness, a dislike of light and air, difficult breathing; in some cases, delirium, but in general, the mind is unimpaired. The pulse becomes tremulous and irregular, convulsions occur, and the patient sinks exhausted, about the third or fourth day from the first appearance of the symptoms.

Hydrophobia is one of those diseases in which the resources of the medical art almost universally fail. To enumerate all the remedies that have been tried, would be to give a list of the most various and contradictory articles. Cases have unquestionably got well under several plans of treatment, which, however, when applied to others, have altogether failed. Large bleedings, cold bathing, warm bathing, wine, opium, musk and other antispasmodics, ipecacuanha, turpen

tine, potass, vinegar, and a copious assortment of quack medicines, have all been tried in vain, in the great majority of instances. From this view of hydrophobia, it must be obvious, that our most anxious care should be directed to the prevention of the disease, since, in the present state of our knowledge, it is almost hopeless of cure. For this purpose, nothing is so effectual as completely cutting out the bitten part, and some portion of the surrounding flesh, as soon as possible after the injury, whenever the situation of the part will allow of it, and dressing the wound thus made, with stimulating salves, or, what is still better, freely applying to its surface the lunar caustic. If this plan be speedily and properly carried into execution, we have every reason to hope that no bad effects will follow from the bite of the animal. If, notwithstanding, hydrophobia should come on, however hopeless the case, something should be done; and we must attempt, in the best way we can, to palliate the distressing symptoms. If the patient be furious, care must be taken to prevent him from injuring himself or others; and for this purpose, the best restraint is the strait waistcoat; as the struggle with other men is always hurtful. Nourishment of a light kind must be given as long as he can swallow, and when this power fails, animal broths may be given by clyster. Costiveness is to be obviated by laxative injections, or by active purgative medicines in the form of pills.

Bleeding from the arm, and cups along the spine, when freely and early employed, have been found beneficial. After active depletion has in this manner been employed, we may try the effects of opium in repeated doses, conjoined with frequent immersion in the warm bath. Placing the system as speedily as possible under a mercurial impression, is said, in a few cases, to have arrested the further progress of the disease.

As it may sometimes be of consequence, in connexion with this disease,

to know whether a dog be really mad, we shall subjoin a few of the marks of the rabid state. There is an alteration in the usual habits of the dog; his appetite is depraved; he is very irritable and treacherous, allowing himself to be fondled, but suddenly snapping or biting without any provocation. His eyes become inflamed, and matter is discharged from the eye-lids. His bark is changed into a howl; he becomes very restless, and desirous to gnaw every thing around him. If he gets loose, he bites all animals that come in his way, especially his own species. He often appears palsied behind, he becomes feeble, his jaws drop, saliva runs from his mouth, and he dies exhausted on the fourth or fifth day.

EPILEPSY.

Epilepsy, or falling sickness, is a disease of frequent occurrence, and arises from various causes. It occurs in paroxysms, marked by convulsions of more or fewer of the muscles of voluntary motion, accompanied with a loss of sense, and ending in a state resembling deep sleep. Epilepsy often suddenly attacks persons seemingly in perfect health; and going off, after a certain time, the patients are left in their usual state. In some patients, there is a very curious warning of the approach of an epileptic fit. From some point on the surface of the body, perhaps one of the fingers or toes, a sensation begins, as of a cold wind, or the creeping of an insect, which appears to proceed to the head, and when it reaches that part, the patient is convulsed. In other cases, the patient fancies he sees a spectre approaching him, and the contact of this figure is the commencement of the convulsions. Whether there be any warning or not, a person thus attacked loses all power of sense and motion, and either falls, or is thrown, with convulsions, to the ground. In that situation, violent convulsions variously move the limbs and the trunk of the body, and frequently they occur with more violence on one side than the other. In almost all cases.

the muscles of the face and eyes are much affected, giving a very distressing and alarming distortion to the countenance. The tongue is often affected, and thrust out of the mouth; and by the convulsive action of the muscles which shut the jaw, the tongue is not unfrequently severely wounded, and has been known to be almost bitten through. During the continuance of the convulsions, as the patient has not the power of swallowing, the spittle issues from the mouth, worked into a frothy state by the action of respiration. This is always an unseemly appearance, though, by itself, it is not to be much regarded as indicating any peculiar violence in the attack. The convulsions generally remit for a few minutes, and are then renewed, perhaps with increased violence. In a little time, the convulsions cease altogether, and the person is left in a state of complete insensibility, in which he remains for a considerable time. Gradually he recovers his senses, but has no distinct remembrance of what has passed from the first attack of the paroxysm. The pulse and breathing are somewhat irregular and hurried, during the fit, but on its ceasing, soon return to their natural state.

Every thing that causes an irritation of the brain, or unduly excites the mental faculties, has been known to produce epilepsy; thus, an injury inflicted on the head, the growth of tumours in the internal parts of the skull, splinters of bone scaling off in consequence of disease, and various alterations of structure in the bones of the cranium, or in the brain or its membranes, have, in different cases, given rise to epileptic paroxysms; the recurrence of which has ceased with the termination of such of the above causes as are removeable, but has continued during life, when the causes are of a permanent nature.

Violent emotions of the mind, as joy, fear, anger, are well known to produce epilepsy. Hence, the propriety in all cases of being very cautious in communicating intelligence likely to produce a strong impression; as even the

most joyful tidings, suddenly and rashly imparted, have been known to produce epilepsy, convulsions, madness, or even death. It is a singular fact, that the sight of a person in an epileptic paroxysm often affects bystanders with similar symptoms; and medical men express the fact, though they can not explain the cause, by ascribing it to the principle of *imitation*; by which great numbers of persons are affected in the same way as one begins to be, whether by enthusiasm, fear, rage, or the more corporeal affections of hysterics and epilepsy. Another cause, which is referable to the brain, is an over-fullness or determination of blood to that organ; of this we are convinced by the frequent occurrence of apoplexy and genuine epilepsy in the same person, and the interchange and alternation of these diseases with each other. Acute pain in distant parts of the body, as from a stone passing through the ureter, may give rise to epilepsy; and irritations of the bowels, by acrid matters lodging in them, by costiveness, or by worms, will often occasion an epileptic attack, though no great uneasiness is felt in the bowels themselves. Children, when teething, are very frequently affected with convulsions of an epileptic character, and also, when their stomach and bowels are out of order. Many causes, the opposite of excitement, produce epilepsy. Thus, a person when weakened by a large bleeding, is sometimes seized with that disease; and debilitating causes, which in some produce fainting, in others cause epileptic convulsions. The depressing passion of terror sometimes produces epilepsy. Several of the vegetable poisons produce epileptic convulsions before they prove fatal. A tendency to epileptic convulsions exists in persons of a delicate and irritable habit, who are easily susceptible of impressions on their nervous system; and hence they so frequently occur in children, and in young persons of both sexes, and in the natives of warm climates. Epileptic convulsions of the most violent kind not

unfrequently attack women when pregnant.

The affections which epilepsy most resembles, are apoplexy, and hysteria. It resembles apoplexy in the suddenness of the attack, and sometimes in the preceding symptoms; but is distinguished by the want of the stertorous breathing, and of the slow and laborious pulse which occur in apoplexy. Epilepsy is distinguished from hysteria, by this last occurring chiefly in females, and being attended with much flatulence and other disorders of the bowels, and with variable and irregular emotions of the mind.

Epilepsy seldom destroys the life of the patient by a single fit; but it is a matter of much anxiety to judge whether the disease is likely to be cured, or whether its subsequent recurrence, at nearly regular periods, is to be apprehended. It is seldom cured when it is hereditary; and the longer it has been habitual, the less is the probability of a cure. In young persons subject to epilepsy, we have reason to hope that some of the great changes which take place in the constitution, the approach of puberty, the appearance of the monthly discharge, or the delivery of the first child, will operate a permanent cure; but if those events pass over without this favourable result, we are compelled to view the case as one beyond the reach of our remedies. Epilepsy which is owing to mental emotions, and especially to frights, is very rarely cured.

In the treatment of epileptic patients, we have three very distinct indications to fulfil; to prevent a fit, to shorten its duration, and to hinder its recurrence; but unhappily our resources are often inadequate to effect either of these objects. In cases where any warning is given of the fit for some time previous, as by head-ache, flushing of the face, or ringing of the ears, in persons of a full habit, we are to resort to purges and to bleeding, either general or local, taking care to avoid all sources of irritation. In epileptic cases, accompanied with the *aura*, it has been proposed

to stop the fit by applying a tight ligature in some part of its course between the extremity and the head; and to effect a permanent cure by dividing the nerve which is believed to transmit the nervous energy to the part; but neither of these plans have succeeded often enough to warrant our confidence in the practice.

Our *second* indication is to shorten the fit, if possible. But, however distressing to friends and bystanders may be the appearance of a person in a fit of epilepsy, it is not often that the most skillful attendant can do much to shorten its duration; often all that can be done is to take care that the patient does not injure himself by the violence of the convulsions. A roll of silk, or some such soft substance, should be put into the mouth, to protect the tongue from being bitten; and the arms or legs are to be held firmly, to prevent them from being dashed about with violence. The patient should be placed on a bed or couch, or have some soft things put under him; he should have the head and temples rubbed with vinegar, or some other cold application: and ammonia or other stimulants are to be applied to the nostrils. It is in general impossible to give any thing by the mouth; and the choice of any thing, when it can be swallowed, must be determined by the peculiar symptoms of each case. If there is flushing of the face, heat of the skin, or other evident marks of increased excitement and determination of blood to the head, it is proper to bleed, and even largely too, during the fit, which will often be considerably shortened by the practice; but if there is a feeble pulse, with clammy sweats, and other marks of debility, it would be the height of imprudence to detract blood: and we should rather, if possible, restore the heat of the skin by gentle rubbing with warm dry flannel, immersing the patient's feet and legs in hot water, and subsequently applying mustard poultices to the ankles; the bowels being opened by an injection of one pint of warm water, half an ounce of Epsom salt, and twen-

ty grains of assafoetida. In the epileptic convulsions of children from teething, it is necessary, along with other remedies, to scarify the gums; and in many cases this should be done to prevent a fit from taking place.

Our *last* indication is, when a fit of epilepsy is over, to do what we can to prevent another. This is not always practicable, but it is to be attempted by restoring the regular actions of the system in general, and of the nervous system in particular. If the patient presents marks of over-fullness and determination to the blood-vessels of the head, we are to diminish these dangerous tendencies by purgative medicines, by a low diet, by avoiding excesses of every kind, and by daily active exercise in the open air. An issue in the neck is a prudent measure. Few medicines can be trusted to, as having any power to prevent the return of epilepsy. Such as have had any reputation at all are some metallic preparations, and some strong smelling vegetable productions, as valerian, assafoetida, and other antispasmodics. It was the opinion of Dr. Fothergill, that the good effect apparent from the preparations of copper and some other metals used in epilepsy, was merely from their deranging the stomach in some degree, and thus preventing people from eating too much, by which the fullness of the system was diminished, and the irritability lessened, which had brought on the fits of epilepsy. The ammoniuret of copper, in the dose of half a grain twice a day, increasing it gradually to three grains, or the oxyde of zinc, in the dose of from three to six grains, or the nitrate of silver, in the dose of an eighth or a quarter of a grain, have been frequently used, but in too many cases without any great success. When there is reason to consider debility as the cause of epilepsy, such measures are to be adopted as strengthen the constitution; and for this purpose we employ bark, chalybeates, and tepid bathing, with regular exercise, frictions to the skin, and attention to the stomach and bowels.

CHOREA.

Saint Vitus' Dance, called by medical writers, *Chorea Sancti Viti*, or simply *Chorea*, is a disease attended with convulsive motions, attacking both sexes, chiefly between the years of seven and fourteen, and rarely occurring after the age of puberty.

The origin of this name is said to be as follows: some women who were disordered in mind, once every year paid a visit to the chapel of St. Vitus near Ulm, and there exercised themselves in dancing, day and night, till they were completely exhausted. Thus they were restored until the following May, when they were again seized with a restlessness and disorderly motion of their limbs, in so great a degree as to be obliged, at the anniversary feast of St. Vitus, to repair again to the same chapel for the sake of dancing.

Chorea attacks boys and girls indiscriminately; and those chiefly who are of a weak constitution, or whose health and vigour have been impaired by confinement, or by the use of scanty or improper nourishment.

The approaches of chorea are slow. A variable and often a ravenous appetite, loss of usual vivacity and playfulness, a swelling and hardness of the belly in most cases, in some a lank and soft belly, and in general a constipated state of the bowels, aggravated as the disease advances; and slight irregular involuntary motions of different muscles, particularly of those of the face, which are thought to be the effect of nervous irritation, precede the more violent convulsive motions which finally become so remarkable as to attract the attention of the friends of the patient.

These convulsive motions vary. The muscles of the limbs, and of the face, those moving the lower jaw, the head, and the trunk of the body, are at different times, and in different instances, affected by it. In this state the patient does not walk steadily; his gait resembles a jumping or starting; he sometimes cannot walk at all, and seems palsied; he cannot perform the com-

mon and necessary motions with the affected arms, the muscles moving the limb in a manner different or even contrary to that desired. The convulsive motions are more or less violent, and are constant, except during sleep, when in most instances they cease altogether.

Articulation is impeded, and frequently completely suspended. Swallowing also is occasionally performed with difficulty. The eye loses its lustre and intelligence; the countenance is pale, and expressive of vacancy and languor. These circumstances give the patient an idiotic appearance.

Fever is not a necessary attendant on chorea. In the advanced periods of the disease, flaccidity and wasting of the flesh take place, the consequence of constant irritation and impaired digestion, the common attendants upon protracted chorea.

The fits are sometimes preceded by a coldness of the feet and limbs, or with a sensation as of cold air rising along the spine, flatulence, pain of the bowels, and obstinate costiveness. At other times, nausea, yawning, stretching, and giddiness, with pains about the teeth and ears, usher in the convulsive motions. These motions often assume the form of a sort of lameness and unsteadiness of one of the legs, which the patient draws after him in a ridiculous manner. The arm of the same side can not be held still, but if it be laid on the breast, it is drawn from it by a convulsive jerk; if the patient is desired to thread a needle, he attempts to do it, but with many deviations, and can rarely accomplish it; if he endeavours to carry any drink to the mouth, it is only after many unsuccessful efforts that he hastily throws the liquor down his throat, as if for the amusement of the bystanders. There is often hysterical symptoms accompanying the disease, as laughing and crying, or passing from one of these to the other on very slight occasions.

Chorea arises from various irritations, as teething, worms, disordered

stomach and bowels, &c. Violent affections of the mind, as fear and anger, have been known to bring it on; in many cases, it arises from debility; and sometimes, it first begins from seeing the disease in others.

They who have once suffered under this disease, are very subject to a relapse. However violent the symptoms, they are never suddenly destructive. When they are recent and in a young person, there is hope of a speedy cure. If the menses are obstructed, their return will mitigate, if not cure the disease. If the temperament is one of great sensibility, or if the disease is hereditary or habitual, the cure is difficult.

Though chorea is rarely attended with danger to life unless when conjoined with epilepsy, or passing into it, still it is a very disagreeable disease, and parents are naturally very anxious for their children to get rid of it. Various plans have been proposed. By those who consider it a disease of debility, the cure of it has been attempted on the tonic or strengthening plan, by giving preparations of iron, bark, and a nourishing diet; by others, opium, ether, camphor, musk, and antispasmodics generally, have been given, to allay the inordinate muscular motions; while many, and especially Dr. Hamilton, of Edinburgh, are confident of effecting the cure by purgatives. Many interesting cases of success by this method have been brought forward by Dr. Hamilton; and Dr. Parr, of Exeter, treated more than sixty cases with purgatives, in one of which only he may have been styled unsuccessful. He says, that the choice of the purgative appears of little importance; but it must be active, for no other will produce the necessary effect, and the saline purgatives are apparently not adapted to the complaint. The author knows no distinction, but in the power of the article employed; the most active are the most useful. He had no reason to follow the purgatives by tonics. After the disease was re-

moved, the general health was always restored with rapidity. It is to be particularly attended to, that the purgative plan requires to be persevered in for a considerable time, and that the bowels are often found to be exceedingly loaded. The plan of treatment by purgatives is also decidedly approved of by Professor Hamilton, in his work on the Management of Children.

We have no doubt whatever of the beneficial effects resulting from purgatives in this disease. We would recommend that chorea be treated precisely as a case of epilepsy; that is, in the young and robust, and where the disease is accompanied with evident marks of an over-excited or a congested state of the blood-vessels of the brain, by the lancet, and cups or leeches to the head, warm baths to the feet, followed by mustard poultices, a low vegetable diet, and blisters or setons along the course of the spine; at the same time, purgatives being administered daily, so as to produce a free evacuation from the bowels. This practice being persevered in for a sufficient length of time, without the disease being removed, or in cases which occur in debilitated habits, and unattended with decided symptoms of determination to the brain, the effects of tonics, particularly the preparations of iron, sulphate of quinia, oxyde of zinc, or nitrate of silver, may be tried, due attention being paid, at the same time, to keep up a regular action of the bowels by the proper administration of purgatives. The arsenical solution has occasionally been found useful, in the same doses as it was directed in intermitting fever. When the irritation of worms is suspected to keep up the disease, spirits of turpentine, or a teaspoonful of table-salt in a wine-glassful of water, every morning, may be administered. The tincture of meadow saffron is said to be occasionally very effectual in removing the disease, in the dose of from thirty to forty drops, three times a day. Opium, ether and other stimulants, should be entirely prohibited.

INSANITY.

Mental disease, mania or madness.

It is difficult to give a definition of mental disorders that will be alike satisfactory to all. The metaphysician, the medical practitioner and the moralist, would probably differ as to the degree of vice, folly, absurdity or fury that they would consider as constituting a state of madness; while the infinitely diversified characters of men, and the changing intellect and views of the same person at different periods, tend still further to perplex the subject, and hence require that a great latitude be allowed in all our discussions on the derangements of the understanding. In a plain and practical work like this, we shall not attempt the strictness of metaphysical accuracy, but shall state some of the more remarkable symptoms of madness, the treatment of which is generally confided to the care of medical men. Medical writers, in treating on this subject, commonly adopt the following distinctions:—I. *Mania*, or *Madness*, as it occurs either in the sanguine or melancholic temperament. II. *Fatuity*, or *Idiotism*. III. *Melancholia*, by which is meant, not what we commonly understand in English by the word *melancholy*, but the condition of the mind of those who, on all subjects but one, reason and act like other men.

I. *Mania*, or madness, is distinguished by the patient having false and incorrect views of things, especially shown by the wrong opinions he entertains of his nearest friends; suspecting them of the most malignant intentions towards him, and treating them with the bitterest abuse and hatred; he talks incoherently and ravingly, and often with prodigious rapidity, and for a long continuous period; the passions are not under the control of the will, and there is, for the most part, great violence of action, and furious impatience of restraint.

Insanity in the melancholic temperament has some variety in the symptoms. Such patients are sad, dejected

and dull, without any apparent cause; gloomy and fond of solitude. They are eowardly, prone to anger, and changeable in their tempers; when the disease is at its height, they are very furious, and some tear and mangle their own bodies. Their countenance is pale, and their pulse is slow; their bowels are generally costive. As the paroxysm goes off, they become stupid, calm, and mournful; and much grieved on account of their unhappy situation. Patients of this description are often lamentably prone to suicide.

A striking circumstance in maniacal patients is their power of resisting impressions from external things, which persons in health feel so acutely. A maniac will endure, for instance, an intensity of cold, which would destroy a person in health; the ordinary doses of medicine have little or no effect upon them, and they are capable of enduring hunger for a very long time. The muscular strength of maniacal persons is prodigiously increased; and it is a difficult matter to restrain them by the strength of other men during the violence of their paroxysms.

Persons of every different temperament are subject to madness, but it principally attacks the exquisitely sanguine, or the exquisitely melancholic. In many cases mania is not a permanent affection, but there occur what are called lucid intervals, during which the patient is in good health of mind and body. Mania comes on at different periods of life. It is not at all certain that the moon, in any part of its course, has any influence on madness. Sometimes mania lasts during the whole of the life of the patient, or degenerates into idiotism. The immediate accession of a paroxysm of madness does not show itself by the same symptoms in different patients. Not unfrequently they complain of uneasiness about the stomach, costiveness, heat, and want of sleep. Soon after, the language and conduct become incoherent, and the motions and gestures wild and irregular; some are gloomy and sullen, while others are

good-humoured and disposed to laughter. In some cases the conduct is violent and furious; there is grinding of the teeth, rolling of the eyes, loud roarings, great exertion of muscular strength, a desire of injuring those around them, and especially those who were formerly most dear to them.

Though the examination of the bodies of maniacs has as yet thrown little light on the causes of madness, not enabling us to say what part of the brain or nervous system is principally interested, yet we can not doubt, that in our present state of being, there is the most intimate connexion between mind and body, and that the disordered intellect is always connected with some remarkable changes from the healthy condition in the brain and other organs of the body.

Mania is very often a hereditary disease, and there can be surely none of a more afflicting nature. It is generally brought on by sudden and violent emotions of the mind; jealousy, anger, love, pride, joy, disappointment; though it is remarkable, that an unexpected flow of prosperity, or a sudden communication of joyful intelligence, is more frequently known to upset the mind than the reception of disastrous news. Madness is often the sequel of frequent intoxication, of violent long continued exercise, of the sudden drying up of accustomed drains or evacuation from the body. The injudicious use of mercury, and the occurrence of some febrile disease, has been known to excite madness; and some circumstances in parturition, though we can not say in what constitutions these circumstances ordinarily occur, seem to give rise to madness; but sometimes this last species of mental derangement, though it lasts very long, is finally got the better of.

In the early and furious stage of madness, something is to be attempted by medical means, to allay the violent excitement. The head is to be shaved, and cold applied, either by pouring on cold water and vinegar, by laying on wet cloths, or, as has been sometimes

done, by a clay cap. Blood should be drawn from the arm, and from the head by cups or leeches, in proportion to the violence of the symptoms, and purgative medicines of great activity given, as gamboge, jalap, and scammony. The remarkable resistance of the system to the powers of medicine, renders it necessary to give large doses, and to persist in their use for some time. To prevent the maniae from injuring himself or others, the best expedient is the strait waistcoat; and it is always distressing and hurtful to make the patient contend with the strength of other men. However painful to the feelings of friends it may be to have recourse to the strait waistcoat, it is in reality the most lenient method we can employ; it gives no pain to the patient; and very commonly, when he finds that his exertions are unavailing, he gives them over, and continues quiet.

The first period of the attack, when the body is much disordered, is soon over; and then comes the difficult part, the management of the mind. This has too often been left to persons of rude habits and unfeeling hearts, who have thought to govern their unhappy charge by brute force, to restrain him from violence, by bolts and chains, or to quell his passions by blows and stripes. Of late years, a more humane and rational practice has prevailed. Persons of education, of principle, and of humanity, have undertaken the management of the insane; and though they must necessarily employ meaner hands in the details of their duty, their superintendence has been faithfully exerted to prevent any improper conduct in their subordinate agents. When a person becomes decidedly insane, it is unquestionably the most prudent and humane measure, to put him under the care of persons who have devoted themselves to this occupation; and to remove them from their usual homes, to places where security is combined with as much comfort as their situation will admit of. It is of great consequence to acquire an influence over

the minds of maniacs, and this is to be done by the exercise of prudence and firmness; by showing them that their violent and outrageous conduct does not lead them to the attainment of their purposes. Coercion is in very many cases absolutely necessary, and this should be employed in the most peremptory and effectual manner. It should be remembered that the muscular strength of maniacs is great, and therefore the force employed in securing them should be amply sufficient, and such as not only to prevent the patient from being successful in his resistance, but such as to show him instantly that resistance is vain. When the keeper has established in the mind of the maniac, the awe and respect necessary for his management, the patient is to be treated with all possible lenity and attention, conformable to his station in life, and to his former habits; and every indulgence consistent with his health and security should be allowed. It is of great moment to keep maniacs employed; and many establishments engage their patients in constant and regular field-work or exercise. This may be repugnant to the former habits, and to the rank of some patients, who are in consequence deprived of a resource and a means of cure, possessed by their more humble fellow-sufferers. Females are to be allowed their usual occupations, drawing, music, sewing, knitting, or the like. There is frequently a degree of cunning about maniacs which is very apt to deceive the ignorant and inexperienced. They appear to conduct themselves with great propriety when in confinement, but whenever they return to their families, their disorder returns. Their relations should therefore be very cautious about removing them.

The diet of insane persons should be light, nourishing, and easy of digestion, and in proper proportion to their bodily strength, and the exercise they are accustomed to take. With respect to medicine and all its auxiliaries, drugs, warm and cold bathing, and

other appliances, confirmed insanity seems to be quite beyond their reach ; and the utmost we should attempt in this way, is to obviate costiveness, and occasionally to administer the warm bath. Some have thought a blister or issue to the back or neck may be useful, but the dressing of such sores would be so difficult that such expedients are better let alone. In the melancholy or depressed kind of madness, a little variation of the treatment is to be adopted. Instead of withdrawing stimuli altogether, we are to admit light and free air, to suffer the patient to look out on green fields and cheerful objects, and to permit every healthful and safe amusement of which they are capable. Every instrument of destruction must be carefully kept out of their way. Insane patients, when confined in cold weather, unless their bodies be properly defended, are subject to a mortification of the toes and feet, and when helpless and bed-ridden, are liable to ulcerations of different parts of the body. To prevent these melancholy accidents, the apartments of asylums should be warmed by heated air ; and the parts likely to become affected are to be rubbed with emollient or stimulating liniments, and soft substances should be put under them to lessen the effects of pressure.

II. *Fatuity* or *Idiotism* is a very hopeless kind of mental disease. It often arises from original imperfection of the faculties of memory and judgment, and sometimes forms one of the sad train of evils that beset the path of closing life. It sometimes arises from epilepsy or organic diseases within the skull ; or it is the consequence of disorders by which the mind and body have been long debilitated. In the last cases only, is there the smallest encouragement to attempt a cure ; and this is to be tried by cheerful company, gentle exercise in the open air, change of scene, a generous diet, and attention to the bowels.

III. *Melancholia* is the technical term adopted by Cullen and other writers, for that species of insanity in

which, on all subjects but one, the patient thinks and acts correctly. It is now more generally denominated *monomania*. No better example can be given of this disorder, than one with which all Europe is familiar, the case of the hero of *La Mancha*, the champion and flower of chivalry. On all subjects but one, Don Quixote displays good sense and virtue of the highest order ; but when knight-errantry and romance come across his disordered imagination, he is betrayed into the most absurd reasoning, wild adventures, and ludicrous distresses. The treatment of patients affected with this partial insanity scarcely belongs to the physician, unless when there is considerable derangement of the health, or when he is consulted as to the propriety of putting them under restraint. He can only recommend attention to what is likely to promote the general health, especially the diet, and the regularity of the alvine discharge ; and it is right to comply with the more harmless fancies of the patient, and mildly and unobtrusively to combat those which are more dangerous. Precautions should of course be taken, that they who labour under partial insanity neither injure their own persons, nor those of others. Much of the treatment is applicable here, which we have detailed under hypochondriasis.

In a late work on the *Intellectual Powers*, by Dr. Abercrombie, he has some observations on the subject of insanity, which he discusses like a Christian moralist as well as a physician ; and we are happy to add to the foregoing imperfect sketch of the different kinds of insanity, and their treatment, a large quotation from his useful and judicious pages.

The principal distinction he makes of mental diseases, is into insanity in its various kinds and degrees, and idiotism. "There is a peculiar power," he remarks, "which is possessed by the mind in a healthy state, of arresting or changing the train of its thoughts at pleasure,—of fixing the attention upon one or transferring it to another,

—of changing the train into something which is analogous to it, or of dismissing it altogether. This power is, to a greater or less degree, lost in insanity, and the result is one of two conditions. Either the mind is entirely under the influence of a single impression, without the power of varying or dismissing it, and comparing it with other impressions; or it is left at the mercy of a train of impressions which have been set in motion, and which succeed one another according to some principle of connexion, over which the individual has no control. In both cases, the mental impression is believed to have a real and present existence in the external world; and this false belief is not corrected by the actual state of things as they present themselves to the senses, or by any facts or considerations which can be communicated by other sentient beings.

It appears, then, that there is a remarkable analogy between the mental phenomena in insanity and in dreaming; and that the leading peculiarities of both these conditions are referable to two heads.

1. The impressions which arise in the mind are believed to be real and present existences, and this belief is not corrected by comparing the conception with the actual state of things in the external world.

2. The chain of ideas or images which arise, follow one another according to certain associations, over which the individual has no control: he can not, as in a healthy state, vary the series, or stop it at his will.

In the numerous forms of insanity, we shall see these characters exhibited in various degrees; but we shall be able to trace their influence in one degree or another through all the modifications; and, in the higher states, or what we call perfect mania, we see them exemplified in the same complete manner as in dreaming. The maniac fancies himself a king, possessed of boundless power, and surrounded by every form of earthly splendour; and, with all his bodily senses in their per-

fect exercise, this hallucination is in no degree corrected by the sight of his bed of straw and all the horrors of his cell.

From this state of perfect mania, the malady is traced through numerous gradations, to forms which exhibit slight deviations from the state of a sound mind. But they all show, in one degree or another, the same leading characters, namely, that some impression has taken possession of the mind, and influences the conduct in a manner in which it would not affect a sound understanding; and that this is not corrected by facts and considerations which are calculated immediately to remove the erroneous impression. The lower degrees of this condition we call eccentricity; and, in common language, we often talk of a man being crazed upon a particular subject. This consists in giving to an impression or a fancy, undue and extravagant importance, without taking into account other facts and considerations which ought to be viewed in connexion with it. The man of this character acts with promptitude upon a single idea, and seems to perceive nothing that interferes with it; he forms plans, and sees only important advantages which would arise from the accomplishment of them, without perceiving difficulties or objections. The impression itself may be correct, but an importance is attached to it disproportioned to its true tendency; or consequences are deduced from, and actions founded upon it, which would not be warranted in the estimate of a sound understanding. It is often difficult to draw the line between certain degrees of this condition and actual insanity; and in fact they very often pass into each other.

It is incorrect to say of insanity, as has been said, that the maniac reasons correctly upon unsound data. His data may be unsound, that is, they may consist of a mental image which is purely visionary; but this is by no means necessary to constitute the disease; for his premises may be sound, though he

distorts them in the results which he deduces from them.

A remarkable peculiarity, in many cases of insanity, is a great activity of mind, and rapidity of conception,—a tendency to seize rapidly upon incidental or partial relations of things,—and often a fertility of imagination, which changes the character of the mind, sometimes without remarkably distorting it. The memory, in such cases, is entire, and even appears more ready than in health; and old associations are called up with a rapidity quite unknown to the individual in his sound state of mind.

It is this activity of thought, and readiness of association, that gives to maniacs of a particular class an appearance of great ingenuity and acuteness.

The peculiar character of insanity, in all its modifications, appears to be, that a certain impression has fixed itself upon the mind, in such a manner as to exclude all others; or to exclude them from that influence which they ought to have on the mind in its estimate of the relation of things. This impression may be entirely visionary and unfounded; or it may be in itself true, but distorted in the applications which the unsound mind makes of it, and the consequences which are deduced from it. Thus, a man of wealth fancies himself a beggar, and in danger of dying of hunger. Another takes up the same impression, who has, in fact, sustained some considerable loss. In the one, the impression is entirely visionary, like that which might occur in a dream. In the other, it is a real and true impression, carried to consequences which it does not, in fact, warrant.

There is great variety in the degree to which the mind is influenced by the erroneous impression. In some cases, it is such as entirely excludes all others, even those immediately arising from the evidence of the senses, as in the state of perfect mania formerly referred to. In many others, though in a less degree than this, it is such as to change

the whole character. The particular manner in which this more immediately appears, will depend of course upon the nature of the erroneous impression. A person, formerly most correct in his conduct and habits, may become obscene and blasphemous; accustomed occupations become odious to him; the nearest and most beloved friends become objects of his aversion and abhorrence.

The uniformity of the impressions of maniacs is indeed so remarkable, that it has been proposed by Pinel, as a test for distinguishing real from feigned insanity. He has seen melancholics confined in the Bicêtre, (an hospital at Paris,) for twelve, fifteen, twenty, and even thirty years; and, through the whole of that period, their hallucination has been limited to one subject. Others, after a course of years, have changed from one hallucination to another.

The sudden revival of old impressions, after having been long entirely suspended by mental hallucinations, presents some of the most singular phenomena connected with this subject. Dr. Prichard mentions an interesting case of this kind from the *American Journal of Science*. A man had been employed for a day with a beetle and wedges in splitting pieces of wood for erecting a fence. At night, before going home, he put the beetle and wedges into the hollow of an old tree, and directed his sons, who had been at work in an adjoining field, to accompany him next morning to assist in making the fence. In the night he became maniacal, and continued in a state of insanity for several years, during which time his mind was not occupied with any of the subjects with which it had been conversant when in health. After several years his reason returned suddenly, and the first question he asked was, whether his sons had brought home the beetle and wedges. They, being afraid of entering upon any explanation, only said, that they could not find them; on which he rose from his bed, went to the field

where he had been at work so many years before, and found, where he had left them, the wedges, and the iron rings of the beetle, the wooden part being entirely mouldered away. A lady, mentioned in the same journal, had been intensely engaged for some time in a piece of needle-work. Before she had completed it, she became insane, and continued in that state for seven years, after which her reason returned suddenly. One of the first questions she asked related to her needle-work, though she had never alluded to it, so far as was recollected, during her illness. I have formerly alluded to the remarkable case of a lady, who was liable to periodical paroxysms of delirium, which often attacked her so suddenly, that, in conversation, she would stop in the middle of a story, or even of a sentence, and branch off into the subject of her hallucination. On the return of her reason, she would resume the conversation in which she was engaged at the time of the attack, beginning exactly where she had left off, though she had never once alluded to it during the delirium; and, on the next attack of delirium, she would resume the subject of hallucination, with which she had been occupied at the conclusion of the former paroxysm.

Among the most singular phenomena connected with insanity, we must reckon those cases in which the hallucination is confined to a single point, while, on every other subject, the patient speaks and acts like a rational man; and he often shows the most astonishing power of avoiding the subject of his disordered impression, when circumstances make it advisable for him to do so.

Lord Erskine gives a very remarkable history of a man, who indicted Dr. Munro for confining him without cause in a mad-house. He underwent the most rigid examination by the counsel for the defendant, without discovering any appearance of insanity, until a gentleman came into court, who desired a question to be put to him respecting a princess with whom he had

corresponded in cherry-juice. He immediately talked about the princess in the most insane manner, and the cause was at an end. But this having taken place in Westminster, he commenced another action in the city of London, and, on this occasion, no effort could induce him to expose his insanity; so that the cause was dismissed only by bringing against him the evidence taken at Westminster. Several years ago, a gentleman in Edinburgh, who was brought before a jury, defeated every attempt of the opposite counsel to discover any trace of insanity, until a gentleman came into court, who ought to have been present at the beginning of the case, but had been accidentally detained. He immediately addressed the patient, by asking him what were his latest accounts from the planet Saturn, and speedily elicited ample proofs of insanity.

When the mental impression is of a depressing character, that modification of the disease is produced which is called melancholia. It seems to differ from mania merely in the subject of hallucination, and accordingly we find the two modifications pass into each other,—the same patient being, at one time, in a state of melancholic depression, and at another, of maniacal excitement. It is, however, more common for the melancholic to continue in the state of depression, and generally in reference to one subject; and the difference between him and the exalted maniac does not appear to depend upon the occasional cause. For we sometimes find persons who have become deranged, in connexion with overwhelming calamities, show no depression, nor even a recollection of their distresses, but the highest state of exalted mania. The difference appears to depend chiefly upon constitutional peculiarities of character.

The most striking peculiarity of melancholia is the prevailing propensity to suicide; and there are facts connected with this subject, which remarkably illustrate what may be called the philosophy of insanity. When the me-

lancholic hallucination has fully taken possession of the mind, it becomes the sole object of attention,—without the power of varying the impression, or of directing the thoughts to any facts or considerations calculated to remove or palliate it. The evil seems overwhelming and irremediable, admitting neither of palliation, consolation, nor hope. For the process of mind calculated to diminish such an impression, or even to produce the hope of a palliation of the evil, is precisely that exercise of mind which, in this singular condition, is lost or suspended;—namely, a power of changing the subject of thought, of transferring the attention to other facts and considerations, and of comparing the mental impression with these, and with the actual state of external things. Under such a conviction of overwhelming and hopeless misery, the feeling naturally arises of life being a burden, and this is succeeded by a determination to quit it. When such an association has once been formed, it also fixes itself upon the mind, and fails to be corrected by those considerations which ought to remove it. That it is in this manner the impression arises, and not from from any process analagous to the determination of a sound mind, appears, among other circumstances, from the singular manner in which it is often dissipated; namely, by the accidental production of some new impression, not calculated, in any degree, to influence the subject of thought, but simply to give a momentary direction of the mind to some other feeling. Thus, a man mentioned by Pinel, had left his house in the night, with the determined resolution of drowning himself, when he was attacked by robbers. He did his best to escape from them, and, having done so, returned home, the resolution of suicide being entirely dissipated. A woman, mentioned, I believe, by Dr. Burrows, had her resolution changed in the same manner, by something falling on her head, after she had gone out for a similar purpose.

Insanity is, in a large proportion of cases, to be traced to hereditary predisposition; and this is often so strong, that no prominent moral cause is necessary for the production of the disease, and probably no moral treatment would have any effect in preventing it; we must, however, suppose, that, where a tendency to insanity exists, there may be, in many cases, circumstances in mental habits or mental discipline, calculated either to favour or to counteract the tendency.

The higher degrees of insanity are in general so distinctly defined in their characters, as to leave no room for doubt in deciding upon the nature of the affection. But it is otherwise in regard to many of the lower modifications; and great discretion is often required, in judging whether the conduct of an individual, in particular instances, is to be considered indicative of insanity. This arises from the principle, which must never be lost sight of, that, in such cases, we are not to decide simply from the facts themselves, but from their relation to other circumstances, and to the previous habits and character of the individual. There are many peculiarities and eccentricities of character which do not constitute insanity; and the same peculiarities may afford reason for suspecting insanity in one person and not in another;—namely, when in the former, they have appeared suddenly, and are much opposed to his previous uniform character; while, to the latter, they have been long known to be habitual and natural. Thus, acts of thoughtless prodigality and extravagance, may, in one person, be considered entirely in accordance with his uniform character; while the same acts, committed by a person formerly distinguished by sedate and prudent conduct, may give good ground for suspecting insanity;—and in fact constitute a form in which the affection very often appears. In ordinary cases of insanity, a man's conduct is to be tried by a comparison with the average

conduct of other men; but, in many of the cases now referred to, he must be compared with his former self.

Another caution is to be kept in mind, respecting the mental impressions of the individual in these or suspected cases of insanity;—that an impression, which gives reason for suspecting insanity in one case, because we know it to be entirely unfounded and imaginary, may allow of no such conclusion in another, in which it has some reasonable or plausible foundation. Insane persons indeed often relate stories which hang together so plausibly and consistently, that we can not say whether we are to consider them as indicative of insanity, until we have ascertained whether they have any foundation, or are entirely imaginary. The same principle applies to the antipathies against intimate friends which are often so remarkable in the insane. They may be of such a nature as decidedly to mark the hallucination of insanity,—as when a person expresses a dislike to a child, formerly beloved, on the ground that he is not really his child, but an evil spirit which has assumed his form.

This is clearly insanity; but if the antipathy be against a friend or relative, without any such reason assigned for it, we require to keep in view the inquiry, whether the impression be the result of hallucination, or whether the relative has really given any ground for it. In all slight or doubtful cases, much discretion should be used in putting an individual under restraint, and still more in immediately subjecting him to confinement in an asylum for lunatics. But there is one modification in which all such delicacy must be dispensed with,—namely, in those melancholic cases which have shown any tendency to suicide. Whenever this propensity has appeared, no time is to be lost in taking the most effectual precautions; and the most painful consequences have very often resulted, in cases of this description, from misplaced delicacy and delay.

Some of the points which have been

briefly alluded to, seem to bear on the practical part of this important subject,—the moral treatment of insanity. Without entering on any lengthened discussion, some leading principles may be referred to the following heads:—

I. It will be generally admitted, that every attempt to reason with a maniac is not only fruitless, but rather tends to fix more deeply his erroneous impression. An important rule, in the moral management of the insane, will therefore probably be, to avoid every allusion to the subject of their hallucination, to remove from them every thing calculated by association to lead to it, and to remove them from scenes and persons likely to recall or keep up the erroneous impression. Hence, probably, in a great measure, arises the remarkable benefit of removing the insane from their usual residence, friends and attendants, and placing them in new scenes, and entirely under the care of strangers. The actual effect of this measure is familiar to every one, who is in any degree conversant with the management of the insane. That the measure may have its full effect, it appears to be of importance that the patient should not, for a considerable time, be visited by any friend or acquaintance; but should be separated from every thing connected with his late erroneous associations. The danger also is well known which attends a premature return to home and common associates;—immediate relapse having often followed this, in cases which had been going on for some time in the most favourable manner.

II. Occupation. This is referable to two kinds, namely, bodily and mental. The higher states of mania, in general, admit of no occupation; but, on the contrary, often require coercion. A degree below this may admit of bodily occupation, and, when this can be accomplished in such a degree as fully to occupy the attention, and produce fatigue, there is reason to believe that much benefit may result from it. On

a similar principle, it is probable that in many cases much benefit might result from moral management calculated to revive associations of a pleasing kind, in regard to circumstances anterior to the occurrence of the malady.

III. Careful classification of the insane, so that the mild and peaceful melancholic may not be harassed by the ravings of the maniac. The importance of this is obvious; but of still greater importance it will probably be, to watch the first dawns of reason, and instantly to remove the patient from all associates by whom his mind might be again bewildered.

Cases of decided insanity in general admit of little moral treatment, until the force of the disease has been broken in some considerable degree. But among the numerous modifications which come under the view of the physician, there are various forms in which, by judicious moral management, a great deal is to be accomplished. Some of these affections are of a temporary nature, and have so little influence on a man's general conduct in life, that they are perhaps not known beyond his own family or confidential friends. In some of these cases, the individual is sensible of the singular change which has taken place in the state of his mental powers, and laments the distortion of his feelings and affections. He complains, perhaps, that he has lost his usual interest in his family, and his usual affection for them; and that he seems to be deprived of every feeling of which he was formerly susceptible. The truth is, that the mind has become so occupied by the erroneous impression, as to be inaccessible to any other, and incapable of applying to any pursuit, or following out a train of thought.

A most interesting affection of this class often comes under the observation of the physician, consisting of deep but erroneous views of religion, —generally accompanied with disturbed sleep, and considerable derangement of the system, and producing a

state of mind closely bordering upon insanity. It occurs most commonly in young persons of acute and susceptible feelings, and requires the most delicate and cautious management. Two modes of treatment are frequently adopted in regard to it, both equally erroneous. The one consists in hurrying the individual into the distraction of company, or a rapid journey; the other, in urging religious discussions, and books of profound divinity. Both are equally injudicious, especially the latter; for every attempt to discuss the important subject, to which the distorted impression refers, only serves to fix the hallucination more deeply. The mode of treatment, which I have always found most beneficial, consists of regular exercise, with attention to the general health; and in enforcing a course of reading of a nature likely to fix the mind, and carry it forward in a connected train. Light reading or mere amusement will not answer the purpose. A regular course of history appears to succeed best, and fixing the attention by writing out the dates and leading events in the form of a table. When the mind has been thus gradually exercised for some time in a connected train of thought, it is often astonishing to observe how it will return to the subject which had formerly overpowered it, with a complete dissipation of former erroneous impressions. A common complaint at the commencement of such an exercise is, that the person finds it impossible to fix the attention; or to recollect the subject of even a few sentences: this is part of the disease, and, by perseverance, gradually disappears. This experiment I have had occasion to make many times, and it has always appeared to me one of extreme interest. I do not say that it has uniformly succeeded, for the affection frequently passes into confirmed insanity; but it has succeeded in a sufficient number of instances to give every encouragement for a careful repetition of it. The plan is, of course, to be assisted by regular exercise, and attention to the

general health, which is usually much impaired. These affections are particularly connected, in a very intimate manner, with a disordered state of the stomach and bowels, and with derangements in the female constitution. Means adapted to these become, therefore, an essential part of the management.

In that remarkable obliteration of the mental faculties, on the other hand, which we call idiocy, fatuity, or dementia, there is none of the distortion of insanity. It is a simple torpor of the faculties, in the higher degrees amounting to total insensibility to every impression; and some remarkable facts are connected with the manner in which it arises without bodily disease. A man mentioned by Dr. Rush, was so violently affected by some losses in trade, that he was deprived almost instantly of all his mental faculties. He did not take notice of any thing, not even expressing a desire for food, but merely taking it when it was put into his mouth. A servant dressed him in the morning, and conducted him to a seat in his parlour, where he remained the whole day, with his body bent forward, and his eyes fixed on the floor. In this state he continued nearly five years, and then recovered completely and rather suddenly. The account which he afterwards gave of his condition during this period was, that his mind was entirely lost; and that it was only about two months before his final recovery, that he began to have sensations and thoughts of any kind. These at first served only to convey fears and apprehensions, especially in the night-time.

The most striking illustration of the various shades of idiocy, is derived from the modifications of intellectual condition observed in the Cretins of the Vallais. These singular beings are usually divided into three classes, which receive the names of cretins, semi-cretins, and cretins of the third degree. The first of these classes, of perfect cretins, are, in point of intellect,

scarcely removed above mere animal life. Many of them cannot speak, and are only so far sensible of the common calls of nature, as to go, when excited by hunger, to places where they have been accustomed to receive their food. The rest of their time is spent, either in basking in the sun, or sitting by the fire, without any trace of intelligence. The next class, or semi-cretins, show a higher degree of intelligence; they remember common events, understand what is said to them, and express themselves in an intelligible manner on the most common subjects. They are taught to repeat prayers, but scarcely appear to attach any meaning to the words which they employ; and they can not be taught to read or write, or even to number their fingers. The cretins of the third degree learn to read and write, though with very little understanding of what they read, except on the most common topics. But they are acutely alive to their own interest, and extremely litigious. They are without prudence or discretion in the direction of their affairs, and the regulation of their conduct; yet obstinate and unwilling to be advised. Their memory is good as to what they have seen or heard, and they learn to imitate what they have observed in various arts, as machinery, painting, sculpture and architecture; but it is mere imitation without invention. Some of them learn music in the same manner, and others attempt poetry of the lowest kind, distinguished by mere rhyme. It is said, that none of them can be taught arithmetic, but I do not know whether this has been ascertained to be invariably true;—there is no doubt that it is a very general peculiarity.

The imbecile, in other situations, show characters very analogous to these. Their memory is often remarkably retentive; but it appears to be merely a power of retaining facts or words in the order and connexion in which they have been presented to them, without the capacity of tracing relations, and forming new associa-

tions. In this manner, they sometimes acquire languages, and even procure a name for a kind of scholarship; and they learn to imitate in various arts, but without invention. Their deficiency appears to be in the powers of abstracting, recombining, and tracing relations; consequently they are deficient in judgment, for which these processes are necessary. The maniac, on the other hand, seizes relations acutely, rapidly, and often ingeniously,—but not soundly. They are only incidental relations, to which he is led by some train of association existing in his own mind; but they occupy his attention in such a manner, that he does not admit the consideration of other relations, or compare them with those which have fixed themselves upon his mind.

The states of idiocy and insanity, therefore, are clearly distinguished in the more complete examples of both; but many instances occur in which they pass into each other, and where it is difficult to say to which of the affections the case is to be referred. I believe they may also be, to a certain extent, combined; or that there may be a certain diminution of the mental powers existing along with that distortion which constitutes insanity. They likewise alternate with one another; maniacal paroxysms often leaving the patient in the intervals in a state of idiocy. A very interesting modification of another kind is mentioned by Pinel. Five young men were received into the Bicêtre, whose intellectual faculties appeared to be really obliterated; and they continued in this state for periods of from three to upwards of twelve months. They were then seized with paroxysms of considerable violence, which continued from fifteen to twenty-five days, after which they entirely recovered.

Idiocy can seldom be the subject either of medical or moral treatment; but the peculiar characters of it often become the object of attention in courts of law, in relation to the competency of imbecile persons to manage their own

affairs; and much difficulty often occurs in tracing the line between competency and incompetency. Several years ago, a case occurred in Edinburgh, which excited much discussion, and shows in a striking manner some of the peculiarities of this condition of the mental faculties. A gentleman of considerable property having died intestate, his heir-at-law was a younger brother, who had always been reckoned very deficient in intellect; and consequently his relatives now brought an action into the Court of Session, for the purpose of finding him incompetent, and obtaining the authority of the Court for putting him under trustees. In the investigation of this case, various respectable persons deponed that they had long known the individual, and considered him as decidedly imbecile in his understanding, and incapable of managing his affairs. On the other hand, most respectable evidence was produced, that he had been, when at school, an excellent scholar in the languages, and had repeatedly acted as a private tutor to boys; that he was remarkably attentive to his own interest, and very strict in making a bargain; that he had been proposed as a candidate for holy orders, and, on his first examination, had acquitted himself well; but that, in the subsequent trials, in which the candidate is required to deliver a discourse, he had been found incompetent. The Court of Session, after long pleadings, decided that this individual was incapable of managing his affairs. The case was then appealed to the House of Lords, where, after further protracted proceedings, this decision was affirmed. I was well acquainted with this person, and was decidedly of opinion that he was imbecile in his intellect. At my suggestion, the following experiment was made, in the course of the investigation. A small sum of money was given him, with directions to spend it, and present an account of his disbursement, with the addition of the various articles. He soon got rid of the money, but was found totally incapable of this very

simple process of arithmetic, though the sum did not exceed a few shillings. This individual, then, it would appear, possessed the simple state of memory which enabled him to acquire languages, but was deficient in the capacity of combining, reflecting, or comparing. His total inability to perform the most simple process of arithmetic, was a prominent character in the case, analogous to what I have already stated in regard to the cretins. In doubtful cases of the kind, I think this might be employed as a negative test with advantage; for it probably will not be doubted, that a person who is incapable of such a process, is incompetent to manage his affairs.

It is a singular fact, that the imbecile are, in general, extremely attentive to their own interest, and perhaps most commonly cautious in their proceedings. Ruinous extravagance, absurd schemes, and quixotic ideas of liberality and magnificence, are more allied to insanity;—the former may become the dupes of others, but it is the latter who are most likely to involve and ruin themselves."

DELIRIUM TREMENS.

Delirium tremens, or the delirium of drunkards, is a species of mental derangement, accompanied with a constant and universal tremour of the muscles of the body, a state of incessant motion, great volubility, and total loss of sleep during the entire continuance of the disease. This species of delirium occurs most commonly in drunkards, who, after a debauch of some days or weeks continuance, suddenly abstain from intoxicating drinks; it may attack those, however, who still continue their daily potations, and it is occasionally met with in persons who make use of stimulating drinks only in what are termed moderate quantities, that is, to such an extent as to produce an excitement of the brain, falling short, however, of actual ebriety. The disease has by some writers been improperly termed mania-a-potu

or mania from drinking, and by others, brain-fever.

The patient affected with delirium tremens, continue almost incessantly, night and day, in a state of excitement, constantly talking, and engaged in restless activity. They are not for an instant silent; their limbs never remain quiet, and they are incessantly changing the situation of their bodies, or arranging their clothes, beds, and the furniture of their rooms. The delirium with which they are affected consists in a belief in the presence of imaginary objects, or of persons and things not really present. These objects, whether real or imaginary, are actually seen by the patient, and he is often seriously tormented by the presence of fictitious dogs, cats, snakes, disgusting insects, ferocious animals, or demons, crowding his room, covering his person and bed, and threatening his life. Sometimes he sees, in imagination, persons whom he knows, perhaps some of his friends who have been long dead, or who are in a foreign country, and holds long conversations with them; occasionally, his room is the scene of some brilliant pageant, then of some deadly combat, and again of ludicrous occurrences, the sight of which, by turns, delights, frightens or amuses him. In some instances the patient imagines himself to be pursued by robbers, or by the officers of justice, and his actions are precisely those we should suspect in an individual exerting himself to escape from some impending evil. But it is impossible to describe all the phantasies and horrid shapes, which the disordered imagination in this disease conjures up to torment and harass the unfortunate patient. As we have already remarked, the individual labouring under delirium tremens, neither sleeps nor continues still for a single moment. His eyes are in constant motion, moving with sidelong, fearful, suspicious glances from object to object, and around every part of the room. His arms and feet are incessantly employed, and his tongue is never silent.

The skin is seldom altered from its natural condition, unless the patient be at the same time labouring under some other disease. The head, however, is often hot, the eyes blood-shot and watery, and the countenance is in general pale, with a distressed and haggard expression. The tongue is generally coated with a thick, yellowish mucus; the bowels are usually costive, and nausea and vomiting are not unfrequent. When the disease has continued for any length of time, the temperature of the surface occasionally sinks, cold clammy sweats break out, the patient falls into a state of stupor, with low muttering delirium, constant picking at the bed-clothes, and spasmodic startings of the tendons, followed by death. In other cases, the patient gradually sinks into a state of complete exhaustion, and dies suddenly; and in a few instances, violent convulsions have preceded the fatal termination.

This disease is one which, unless removed by an appropriate treatment, very generally destroys the patient. The chief indication is to procure sleep, from which, if it continue for several hours, the patient awakes perfectly rational, and without any remains of the complaint, save a slight tremour of the limbs and great weakness.

When the patient is young, and still possesses some strength of constitution, when the attack is recent, and is accompanied by some fullness of pulse, heat of the head, a red, watery state of the eyes, and especially if there be flushing of the cheeks, it will be proper to commence the treatment by taking away a few ounces of blood from the arm, and applying cups to the temples and nape of the neck. In nearly all recent cases, local bleeding from the head, by means of cups, will be demanded. Subsequently to bleeding, the head being shaved, cloths wet with cold vinegar and water should be applied to the scalp, and mustard poultices to the extremities. If the bowels be costive, a dose of some mild purgative may be administered, as calcined magnesia, twenty grains; rhubarb, five

grains, and powdered ginger, three or four grains: or, senna, one ounce; cream of tartar, half an ounce; cinnamon, half an ounce, to be infused in a pint of boiling water; dose, when cold, a wine-glassful every two hours; or, castor oil, three drachms; turpentine, one drachm; tincture of senna, two drachms. In the use of purgatives, we must be cautious not to repeat them too frequently, or to cause by them a too loose condition of the bowels, which in all cases of the disease is decidedly prejudicial.

The above remedies will often, when judiciously employed, procure a refreshing sleep; but if this should not be the case, the following may be given towards evening, and repeated every three hours, until sleep occurs: powdered opium, one grain; or sulphate of morphia, half a grain, combined with one grain of powdered camphor, and one of ipecacuanha; or one-sixth of a grain of tartar emetic.

In some cases, larger doses of opium will be required. The effects of the remedy must, however, be cautiously watched, lest it produce an apoplectic stupor, from which the patient, when it occurs, can very seldom be recovered.

The patient should be kept as quiet as possible, in a cool, darkened room; he should be used with great kindness, not unnecessarily contradicted, nor ever confined by means of a strait jacket or ligatures, unless he attempt his own life. His food should be light and nourishing, and moderate in quantity, and his drink may consist either of coffee, weak ginger or hop tea, or toast water, as may be most agreeable to him.

After the patient has recovered from his state of delirium, we should endeavour to restore strength to the stomach and constitution generally, by mild, nourishing diet, regular exercise in the open air, the use of the warm bath and frictions to the surface. The use of distilled and fermented liquors should be entirely abandoned; for a short time, however, after his recovery, the

patient may make use of an infusion of any light bitter, as chamomile flowers, colombo root, or gentian, or some agreeable aromatic, as a weak infusion of ginger, orange-peel, balm or mint.

MUMPS.

The mumps is a painful inflammatory swelling of the parotid glands, appearing behind the angle of the jaw, and often extending lower down, to the maxillary glands.

The tumour, though sometimes confined to one side of the jaw, more usually occurs on both sides; it is at first clearly defined and moveable, but soon becomes fixed, and diffused to a considerable extent. It increases in size till the fourth day, and often involves the neighbouring glands in the inflammation; it is supposed to be contagious, and often prevails as an epidemic. After the fourth day, the swelling gradually declines; and, for the most part, it is unattended, throughout, with fever, and scarcely ever calls for medical aid. As the swelling of the throat subsides, it not unfrequently happens, that a swelling takes place in the testicles of males, and in the breasts of females; which is by no means an unfavourable sign; for it has occasionally been found, that where this sympathy has not been manifested, or the glandular swelling has been suddenly repelled, the symptomatic fever has been greatly increased, and delirium has ensued.

All that is in general requisite in this affection is, to keep the head and face moderately warm, to avoid exposure to cold, to observe a mild diet, and to open the bowels by a very gentle aperient, as a dose of magnesia, rhubarb, or salts.

When the testicles and breasts simply enlarge, they ought not to be interfered with; but should they be very painful, and tend to suppurate or break, a saline purgative should be given, a few leeches applied, and afterwards a warm poultice.

In case of high fever occurring, with other alarming symptoms, the

usual means of reducing inordinate vascular action by bleeding, purging, &c., must be resorted to.

THRUSH, OR APHTHÆ.

Thrush, or apthæ, is a disease very common to infants within the first month, though it may occur later. It consists in small white specks on the tongue, inside of the cheeks and fauces, with more or less derangement of the stomach and bowels. There are two forms of this disease; a milder one, in which the affection of the mouth is slight and the constitutional symptoms not severe; and another form, in which both the local and constitutional symptoms are of considerable violence. In the milder form, a few scattered spots appear on the tongue, in the mouth, or within the lips, like little bits of curd; these soon become yellowish and fall off, leaving the parts below of a red or pink colour, but not ulcerated. The spots may be renewed several times. The bowels are somewhat deranged, griping or purging occurs, the stools are greenish, ill-smelled, and containing portions of undigested milk. The child is fretful, and the mouth is rather warmer than usual, but there is no general fever.

The other variety of the disease begins with great oppression and feverishness, sometimes with fits and violent screaming. When the spots begin to appear, the feverish symptoms are mitigated a little, but do not go off entirely; and it would appear that the ulcerations are not confined to the mouth, but go through the whole alimentary canal, causing severe pain, vomiting, griping, and purging; and the matter discharged is so acrid, as even to produce excoriation of the parts about the anus. The mouth is very tender, and the child sucks with pain and difficulty. The apthæ in a little time fall off, but they may be renewed, and the affection of the bowels, instead of abating, often grows much worse.

When the vomiting is frequent, when the stools are thin and the belly is ten-

der, the case is very unfavourable; and drowsiness, spasms, and languor, with frequent pulse, are also dangerous symptoms. With respect to the mouth, if the spots are few and separate from each other; if they become yellowish and fall off in three or four days, leaving the parts below clean and moist, we may expect that the eruption will not be renewed. But if the aphthæ cover the whole of the internal parts of the mouth, adhere long, and turn brown or black, the prospect is not so favourable.

The disease appears to consist in a peculiar affection of the mucous follicles of the interior parts of the mouth, resulting from irritation of the stomach and bowels. It may be caused by improper or too much food, or by a bad state of the mother's or nurse's milk. The stomach and bowels of infants are peculiarly delicate, and the mouth sympathizes very readily with the derangements of those parts. Bad air, or want of due attention to the cleanliness of the child's person or clothing, frequently produces this disease. Exposure to cold and damp, has also a tendency to bring it on; and aphthæ frequently occur in the adult inhabitants of northern climates, where there is continual moisture of the air, or where the soil is marshy.

As the disease is frequently connected with considerable acidity of the stomach, a little magnesia should be given as a corrective, or the chalk mixture, in the dose of a tea-spoonful every two hours, to infants within the year, or larger doses to those who are farther advanced. No force must be used to displace the curd-like specks; and the patient must not get any thing too warm, salt, or otherwise pungent. Mild cooling substances may be applied to the mouth, as powdered borax mixed with a little honey, or a weak solution of alum, weaker than what a sound mouth could bear. The greatest attention must be paid to the food of the patient. If not weaned, it should be confined to the breast-milk of a healthy nurse. If the patient be be-

yond one year of age, its sole diet should consist of rice or gum water, sweetened with loaf-sugar; to which may be added, as the disease gets better, an equal quantity of fresh cow's-milk boiled. The patient should be immersed in a warm bath daily, and breathe constantly a pure dry air. In severe cases, particularly if the belly be sore or the patient be affected with much griping, two, three, or four leeches should be applied over the stomach.

CROUP.

Croup, or an inflammatory affection of the lining membrane of the wind-pipe, may be divided into three distinct periods or stages. That of congestion or inflammation; that of effusion, and that of weakness or exhaustion.

Most frequently the disease is preceded for a few days by a catarrhal affection, which appears to be in every respect similar to an ordinary cold. The patient experiences alternate sensations of heat and cold, lassitude, and a tendency to sleep. The tongue becomes slightly furred; the appetite is diminished or entirely lost; and soon a cough is added to the above symptoms. There is scarcely any fever during the day, but an augmentation of febrile symptoms takes place towards the evening. The nights are passed in a state of calmness, if we except some slight fits of coughing, which occasionally awaken the patient, particularly in the fore part of the night.

The above catarrhal symptoms present numerous varieties as well in relation to their intensity as to their duration. Many times they are very slight, while in other cases they are of considerable intensity; in certain subjects they exhibit little tendency to run into those of croup, but in others this tendency manifests itself from their very commencement. Their duration, also, is occasionally prolonged to six, eight, and even ten days, while most frequently it is confined to one, two, or three days.

It is generally during the night that

the symptoms proper to the croup show themselves. The child goes to bed as on the evenings preceding, somewhat unwell and with a slight fever. He sleeps quietly, but all at once, during his sleep, his respiration becomes difficult and loud; he coughs frequently, and with a peculiar sound; his face is red, his skin hot, his voice hoarse. He awakens suddenly, is continually agitated, and, if old enough to explain his feelings, complains frequently of a kind of constriction of the throat; many times even of pain about the larynx. These symptoms do not, however, endure for any length of time; in general, the patient gradually becomes calm, the sleep more tranquil, the respiration more free, the sound of the cough more natural, and by morning the child appears to have returned to the same state in which he had gone to bed. But this calm should not lull us into security. For even during the day the pulse is found to preserve its frequency, the cough is hoarse, the respiration somewhat impeded; and in the evening, scarce has the infant fallen asleep, than a paroxysm, still more violent than that of the night preceding, suddenly awakens him. All at once the respiration becomes wheezing and hoarse, the oppression is considerable, with frequently a sensation of suffocation or of strangulation. The patient is seen occasionally to carry his hand to his neck, as though to remove some obstacle by which his breathing is constrained. His eyes have a wild look, his face is swollen, his pulse hard and frequent, his voice hoarse, his cough convulsive and extremely sonorous. There is now a trifling expectoration of a little mucus, sometimes marked with streaks of blood. This paroxysm is at length terminated in the same manner as the preceding, but it is very soon followed by other paroxysms, which are repeated with more or less violence during the night. Sleep appears to favour their return; but even when the infant is awake, the slightest exertion is sufficient to excite them.

It is ordinarily at this juncture that the first period of the disease terminates. The symptoms which follow announce with more or less certainty, that an effusion of lymph has taken place in the trachea. The paroxysms of the disease now increase in force and frequency, and even in their intervals we find that all the symptoms of the disease remain, though in a somewhat less violent degree. The voice continues hoarse, and the cough commences to assume a more piercing and acute sound. The oppression is extreme, and the wheezing of the respiration is heard in every part of the house. In the height of the paroxysm the infant is agitated in a frightful manner; his face and lips become livid, and his forehead is covered with sweat; his pulse, until now strong and hard, commences to be small, contracted, and of an extreme frequency. By the cough, and also by vomiting, is thrown up an immense quantity of thick and thready mucus, mixed frequently with portions of a membranous appearance. What is very remarkable is, that in the midst of all this tumult, and even during the whole continuance of the disease, the power of swallowing very generally remains free.

The third period of the disease is characterized by the presence of all the signs of approaching death. The paroxysms have between them but a few moments of an imperfect remission. The voice is entirely lost. The respiration is convulsive and extremely difficult, and a frightful suffocation every moment threatens the life of the patient; his eyes are without lustre; his face is pale and covered with a cold and clammy sweat; weak and exhausted, he no longer is agitated with violence as in the former period. There is scarcely any cough; the expectoration is almost entirely arrested; the pulse, scarcely sensible, is irregular and intermittent, and most of the animal functions appear to be destroyed. The intellectual faculties, however, generally preserve their integrity even to the last moment. Death comes finally

to terminate this painful scene. Sometimes the patient expires without a struggle, and, at others, in the midst of the most rending agonies.

In the first period of the disease, the symptoms depend upon a congestion and inflammation of the mucous membrane of the trachea, and an increased secretion of the ordinary mucus of this part. In the second stage, there is a morbid secretion of a peculiar character, frequently to such extent as to impede the function of respiration; and in the third stage, we have the consequences of these two—a state of general exhaustion, with an almost total suspension of the function of the lungs, and often more or less congestion or even effusion in the brain. The passage of one of these periods into the other is by degrees almost insensible. Many times they succeed each other with such rapidity that they appear to be confounded. Nevertheless, an experienced eye can always distinguish the principal symptoms peculiar to each.

In the progress of the disease towards a cure, the symptoms, in place of increasing, lose by degrees their force. The paroxysms become less frequent, and at longer intervals, or are entirely suspended. The respiration recovers its freedom, and the disease terminates. When the cure is obtained during the first period, and particularly at its commencement, the disease terminates many times suddenly and without leaving any traces behind. If it is more advanced, and especially if it has attained the middle, or end of the second period, the cure is always slow and gradual. The duration of croup is extremely variable. When it is early attacked by appropriate remedies, it will give way very promptly. When neglected or mismanaged, or when its violence is such as to resist for a long time all remedies, it may be prolonged to eight or ten, or even twelve days; it seldom, however, continues beyond the latter period.

Such is the ordinary progress of the croup in its approach, invasion, increase

and termination. But there is another variety of the disease where all the periods are confounded with each other, and where all the symptoms described above present themselves at the same time, in the most violent and frightful manner. We then no longer observe the catarrhal symptoms which ordinarily precede its invasion. The peculiar symptoms of the disease appear suddenly, rarely in the day, but almost invariably in the night. And when once commenced, they increase in violence, and proceed with the most alarming rapidity. There are no alternations of paroxysms and remissions, or at least these alternations are scarcely marked; or rather there is but a single paroxysm, in the very commencement of which the oppression is considerable, the respiration hoarse, the cough peculiar, the suffocation imminent, the pulse hard and frequent, the face red, the eyes projecting, and the state of anxiety is carried to the highest extent. All these symptoms continue increasing until death. This horrible scene is prolonged to from twenty-four to forty-eight hours, but frequently it continues but eight or ten. The patient perishes then as though violently strangled, and in the most frightful agonies. But if the physician has been called in time, and resorts at once to the employment of remedies adapted in energy to the violence of the disease, we often see the symptoms diminish and cease almost as promptly as they were developed; and it frequently occurs that in a few hours the patient appears to pass alternately from life to death, and again from death to life.

The essential or distinguishing symptoms of the croup are a peculiar hoarse sound of the voice—a ringing cough—difficulty of respiration—fever and expectoration of a peculiar kind.

The hoarse sound of the voice manifests itself ordinarily at the very commencement of the disease; and frequently even before the fever and difficulty of respiration. It is the symptom which, in those cases of the disease that are preceded by a catarrh, should

first awaken the attention of the parent and physician, and inspire them with a prudent suspicion. This hoarseness is at first not considerable, but it augments in proportion as the disease progresses, and it is not rare that in the second or third periods it augments to such a height as even to entirely destroy articulation. This hoarseness of the voice exists even for some time after the disease is terminated.

The cough, in those cases of croup where the disease commences with a catarrh, precedes the disease, and is then not distinguishable from the cough attendant on an ordinary cold; but as soon as the disease attacks the larynx or trachea, the cough changes its character, becomes hoarse, deep and ringing. This change is one of the first symptoms of the invasion of the disease. Some have compared the peculiar sound of the cough in croup to the crowing of a young cock; or that of an irritated fowl, or to the barking of a dog; others describe it as a hoarse and hollow sound; others again as a clear and ringing exclamation of voice; and others as a wheezing more or less acute. A just idea of the peculiar sound of the cough can only be obtained by hearing it, and once heard, it can never be again mistaken.

The difficulty of respiration, in sudden or violent cases, shows itself from the commencement, and accompanies the disease until its termination; but when the croup is preceded by symptoms of catarrh, it takes place later, or many times even is not very evidently marked until towards the second or third day.

The hoarseness of the voice and the croupy cough are the only symptoms which point out the true character of the disease, and their union is sufficient to authorize the physician to act; for if he waits until the difficulty of respiration completely manifests itself, he loses the only time when he can reasonably hope for success.

The patient, tormented by the difficulty of breathing, tries every position to obtain ease. Sometimes the diffi-

culty is augmented by the horizontal, in others by the erect position. Most patients throw back their heads, to increase as it were the size of the larynx, and give to the air a more easy passage into it. The respiration is not only difficult, it is also extremely loud. This noise generally accompanies inspiration, which becomes wheezing and sonorous, while the expiration is deep and obscure. The reverse of this occurs, however, in some cases.

It is necessary, however, to observe, that in the second period, and even sometimes at the commencement of the third; the difficulty of respiration is interrupted by intermissions sufficiently observable. It may even occur, that these intermissions shall be so complete, that the infant returns to a state of apparent calm, and seems to have been suddenly recalled from death to life. Nothing, however, is more insidious than these sudden alterations, and a prudent physician should entirely distrust them, for the same child whom he believes to have suddenly escaped from danger, may in a short time be as suddenly struck with death.

The croup is a disease almost entirely confined to infants. It is rare, however, in the first months of life, but is very frequent from the seventh to the eighteenth; and it rarely attacks after the latter period. Adults, however, are not entirely exempt from the disease. It will in general be found, that children of a robust habit, and apparently in the enjoyment of the most perfect health, are more liable to the disease than those under opposite circumstances. In some families there appears to be a peculiar liability in all the children to be attacked by it.

In reference to this well known fact, of the greater susceptibility to the disease in the children of some families than of others, it behoves the practitioner, when called in to attend a case, to press upon the parents the necessity of the strictest attention to guard their remaining children against every possible cause that can either predispose to or excite the disease; and to be par-

ticularly on their guard on the first symptom of any catarrhal affection.

In Royer Collard's analysis of the several reports on this disease presented to the French government, it is remarked, that nothing predisposes to the occurrence of the croup more certainly than a previous attack of the same disease; and it is above all to prevent its recurrence in those who have already been affected by it, that the greatest precautions should be observed.

The croup is said occasionally to have occurred as an epidemic; particularly at a time when certain eruptive complaints are of frequent occurrence. It is produced by cold and damp, and all the usual causes of catarrh.

It is all-important to commence the treatment of croup with the very onset of the disease. Let this time be lost, and all is lost! The sooner we act, the more our success is certain: the longer we wait, the less of hope remains.

An error to be cautiously avoided, in the treatment of this formidable disease, is that of confining ourselves to mild and inert remedies, when at its commencement the disease appears to be slight. By a prompt and energetic treatment during its first stage, we have almost always the certainty of crushing the disease in its birth; but when, by a less active treatment, we allow the disease fully to develop itself, it may no longer be in our power to arrest its course.

The principal remedies to be employed in ordinary cases of croup, are bleeding, emetics, the warm bath, and purgatives of calomel. We commence the treatment by an emetic in those cases where there is but little fever, and when the hoarseness of the voice and cough are almost the only signs which announce the invasion of the disease. We may give the tartar emetic either alone or combined with ipecacuanha, in doses sufficiently powerful to excite frequent vomiting. If the vomiting is not produced by the aid of the antimony alone, we augment its

efficacy by joining to it the sulphate of zinc or of copper. After the emetic, the child should be immersed in a warm bath; on being removed from which, it will be proper to administer a large dose of calomel, mixed in a little mucilage or syrup; the calomel is to be repeated at short intervals, until very full and free evacuations from the bowels are obtained.

Most frequently, when administered in time, these remedies cause the first symptoms of the disease to disappear, or at least very considerably reduce their violence. We should not, however, depend upon a success so promptly obtained. Many times it is permanent, but most frequently it is but momentary; and soon a rapid development of the disease requires that we should have recourse to a still more powerful remedy. This remedy is bleeding; in general, local bleeding by leeches is sufficient. If, however, the child is very robust—if the suffocation is imminent—and particularly if the head is menaced with a congestion of blood, we should not hesitate to bleed from the arm. The bleeding should not be carried so far as to cause fainting; but it should be sufficient to cause a manifest abatement of the disease. The number of the leeches, or the extent of the bleeding from the arm, should always vary according to the age of the patient, his strength, and the force or violence of the symptoms present. When the first bleeding has not reduced the symptoms, we must have recourse to a second, or to a third or fourth, according to circumstances, only we should not allow too much time to intervene between the repetitions, when they are judged necessary; otherwise we expose the patient to the occurrence of the stage of exhaustion, when bleeding in any quantity will be injurious. We can also, after bleeding, return with advantage to the employment of the emetic and warm bath; or we may give the tartarized antimony in small and frequently repeated doses. By this means we excite the expectoration of the mucus,

which collects continually in the trachea; we determine the circulation to the surface, and produce a free perspiration.

When, at the accession of the disease, the fever is considerable, the face red, the pulse hard and full, and above all, where there is pain of the larynx, and considerable difficulty of respiration, we should commence the treatment by bleeding. After general and local bleeding, single or repeated, we resort to the emetic and warm bath, and then administer at intervals the antimony in small doses.

When these remedies are had recourse to in the very commencement of the disease, and carried to a sufficient extent, they in a majority of cases arrest its further progress. However, so happy an effect is not always obtained; and it happens frequently, that we are obliged to call in the aid of additional remedies. A large blister is then the most efficacious application; the best place to apply it is around the whole of the fore part of the neck, not fearing even to cover by it the recent bites of the leeches.

To the above means we join the use of frequent doses of a combination of nitre, tartar emetic, and calomel; the patient being supplied with drinks of a mild and simple nature, as barley water, toast water, rice water, &c.

In the second stage, besides keeping down inflammatory symptoms by occasional bleeding, blisters, &c., we endeavour to excite the expectoration of the fluids effused in the trachea by vomits, combined with expectorants, such as tartar emetic or ipecacuanha, in divided doses; calomel, in small and repeated doses; the different preparations of squills; the simple or compound decoction of senega; and where they can be had recourse to, fumigations to the throat of the steam of vinegar and water, or pure vinegar.

In some cases the vigour of the patient, the intensity of the fever, and hardness of the pulse, will still require the full application of leeches. There is another means very proper to calm

the inflammation and allay the spasm: this is the warm bath. We continue the patient in it during twenty or thirty minutes, and repeat it every day, or even twice a day. We should be cautious that the patient is not chilled on coming out of the bath, and that his bed be properly heated to receive him the moment he is removed from the water. Unless this caution be attended to, the disease will be augmented by it rather than diminished.

With the bath, the most powerful revulsants should be by turns made use of, and continued, in proportion to the force and obstinacy of the symptoms. We can place anew blisters on the chest, between the shoulders, upon the arms, or we can apply mustard poultices on the soles of the feet and around the legs. If so powerful a remedy be not judged necessary, we can bathe the feet in hot water, in which mustard has been introduced.

If the cure be not obtained in the second period, it is still more rare that we obtain it in the third; the strength is now exhausted; suffocation is imminent, and nature appears no longer to be able to contend against the disease. The treatment here should change, antispasmodics and expectorants are the only means that we now are enabled to make use of. We may continue the use of blisters or mustard poultices, placing them in succession upon the trunk and limbs: at the same time we may apply frictions with the volatile or camphorated liniment, upon those parts which are not covered with blister or poultices. We may continue the fumigation of the throat, and the administration of a very strong decoction of senega. Emetics should be employed with caution; but in small doses, frequently repeated, the tartarized antimony will still be of advantage.

The diet should be very light and abstemious during the continuance of the disease. During the stage of inflammation, it should consist of toast water alone. So long as the disease continues, care is to be taken to shelter

the patient from all impressions of cold or humidity. A moderate and dry temperature is absolutely necessary to the success of the treatment. This caution is necessary for some time after the disease has been removed; for those children who have been once affected with eroup, preserve during a long time a great susceptibility to exterior impressions, and to a relapse, in consequence of their effects upon the system.

In that species of eroup in which all the periods are confused, and the disease seems to be reduced to a single paroxysm, equally rapid in its progress as terrible in its symptoms, it is important that we should be prompt to act, and to act energetically: the least delay may cause the loss of the patient. If the child is robust, we should commence by bleeding from the arm, and immediately afterwards apply leeches to the throat. Immediately after the bleeding, either general or local, we should administer an emetic; and as soon as its operation has ceased, apply a blister, and administer a large dose of calomel, followed by an injection. If these means, resorted to as speedily and with as quick succession as possible, do not stop the progress of the disease, and if the strength of the patient permit it, we can have recourse anew to bleeding; or if this be not practicable, we place the patient in a warm bath, apply mustard to the feet, and give repeated large doses of calomel and purgative injections. When the inflammation appears to be weakened, we administer the antimonial powders, with the addition of small doses of calomel.

When called in sufficiently early, this disease is as much under the control of appropriate remedies as pleurisy, or any other inflammatory disease. But, as Ferriar very justly remarks, "if the symptoms are not mitigated during the first two hours, the disease will generally prove fatal."

HOOPING COUGH.

Whooping cough, or pertussis, is most commonly a disease of childhood;

adults, however, are by no means exempt from it. It seldom attacks the same individual more than once. It usually commences with a dry cough, hoarseness, slight fever, and the other symptoms of ordinary catarrh, with which the disease is generally confounded in its forming stage. The cough becomes by degrees more harsh, and assumes the peculiar sound, and paroxysmal character by which whooping cough is characterized. The catarrhal symptoms may continue several days, before the cough acquires the whooping sound. The peculiar characteristics of the cough, after the disease is fully formed, consist in the act of expiration being repeatedly interrupted at short intervals, each interruption being succeeded by a long effort at inspiration, accompanied with a sharp, hissing or wheezing sound. The fit of coughing continues in the same manner, until at length a copious expectoration of glairy mucus, or vomiting takes place, by which the fit is terminated. The fits of coughing occur at irregular intervals, and are often numerous throughout the day and night. The violence of the disease is proportionate to the duration and intensity of these paroxysms, previously to expectoration or vomiting taking place. Sometimes the fit continues but a few minutes, while at others it endures for a much longer period. The patient is made aware of the approach of a paroxysm of coughing, by a slight irritation felt in the throat, in consequence of which he throws himself upon his knees, seizes hold on some object near him, or desires his head to be held fast by his parents or nurse. The paroxysms follow each other more frequently, and are more severe during the night than in the day. The ordinary interval between them varies in almost every case; every sudden emotion or rapid movement of the body; a fit of crying or anger; the inhalation of irritating substances, &c. are so many causes capable of exciting a paroxysm. When the paroxysm of coughing commences, the patient is affected

with great anxiety; the face swells, and becomes flushed; the eyes protrude, and are filled with tears; and if the disease be violent, the face becomes of a dark red, or purple hue; the eyelids swell; the eyes appear starting from their sockets; the neck is tumid, and at every accession of the cough, the child appears to be threatened with apoplexy, suffocation or strangulation. In numerous instances, the general health of children labouring under this disease is seldom much impaired, and the little patient will often rise from his knees, upon which he had thrown himself at the commencement of the fit, and return with unimpaired spirits to his play. After a violent fit, also, has terminated by vomiting, he will call for food, and eat greedily and voraciously. In the intervals of the paroxysms, indeed, we would in many cases scarcely suspect that he was labouring under disease. After hooping cough has continued for some time, it is attended with expectoration, frequently tinged with blood, which infants often swallow, and which even those who are older do not readily discharge. The disease is not always accompanied with fever, excepting in its early stages: when present, the fever, resembles that which accompanies catarrhal complaints, and has a paroxysm every evening. Hooping cough is a disease of uncertain continuance; after an indefinite time, the symptoms gradually abate, until at length nothing remains, excepting a harassing and frequent cough, unaccompanied, however, with the peculiar marks by which it was characterized in the height of the disease. This ordinarily ceases after a few days, and the patient returns very quickly to a state of health. In some cases, however, it is kept up apparently by the force of habit, and continues for months, or even longer.

The hooping cough, under ordinary circumstances, is rather a troublesome than a dangerous disease. It is, however, dangerous in proportion to its violence and duration; to the weak-

ness of the constitution of those it attacks; it is also a much more serious disease in young infants than during childhood or adult age. In warm climates or in warm seasons of the year, it attacks with less violence and is of shorter duration, than under opposite circumstances.

In infants, particularly those of a delicate or unhealthy constitution, it is apt to produce convulsions, suffocation, apoplexy, inflammation or dropsy of the brain, or ruptures. A moist skin, warm extremities, open bowels, and free vomiting, are favourable symptoms. When hooping cough is very violent or long continued, it is apt, in the predisposed, to produce a diseased condition of the lungs, attended with hectic fever, and other symptoms of consumption; or a state of extreme emaciation may be induced, finally terminating in death. When the paroxysms are violent, it is said that death may be produced by the rupture of a blood-vessel in the brain, or by suffocation; we believe, however, this to be a rare occurrence.

It is remarked, that seasons in which sudden vicissitudes of temperature are the most frequent, as towards the end of autumn or the commencement of spring, are those in which the disease occurs with the greatest violence, and we know that when the symptoms have been considerably abated, and the disease is on the decline, if the patient be exposed to the influence of a cold or damp atmosphere, it will recur with increased force.

With respect to the treatment of hooping cough, this differs considerably, according to the violence and nature of the symptoms, and the stage of the disease. In the very commencement, the remedies are the same as in the forming stage of catarrh; and we have reason to believe, that at its very onset, by an emetic, followed by a warm bath, and an opiate combined with some diaphoretic, adapted to the age of the patient, we should in most instances be enabled greatly to diminish the violence and curtail the duration of

its subsequent symptoms. When the disease is fully formed, if the patient be of a robust or full habit, if there be much difficulty of breathing, or if the other symptoms of the paroxysm be of considerable violence, particularly if there be fever, and an evident determination to the head, bleeding from the arm, or locally from the head and chest, by cups or leeches, will be demanded; and a quantity of blood should be thus drawn off, graduated by the urgency of the symptoms, and the age and strength of the patient. Although, in every case of pertussis, bleeding will not be demanded, yet, under circumstances similar to those we have enumerated, its neglect would be attended with serious consequences.

Emetics are the remedy from which the most advantage will be derived in this disease. To do good, however, the operation of the emetic should be frequently repeated; at least once in the twenty-four hours during the first stages of the disease, or as long as the paroxysms recur with violence. In cases attended, however, by the symptoms indicating blood-letting, the use of the emetic should be preceded by the lancet, cups or leeches, according as circumstances may require. During the intervals of vomiting, the exhibition of nauseating doses, either of tartar emetic or ipecacuanha, will generally produce decided relief. Subsequent to the operation of the emetic, Dr. Pearson has recommended a combination of opium, ipecacuanha, and carbonate of soda, according to the following formula: tincture of opium, one drop; wine of ipecacuanha, five drops; carbonate of soda, three grains; water, one drachm; which is the dose for a child a year old, to be repeated every three hours.

Blisters to the chest or to the back, between the shoulders, as well as behind the ears, are in many cases productive of the best effects. There are few cases marked with any degree of violence, in which they should not be applied; but in milder cases, a warm plaster, or embrocations to the spine

with some stimulating liniment, may in general supersede the use of blisters. The most common stimulants employed for this purpose are garlic, camphor, ammonia, and the spirits of turpentine and oil of amber. As the local stimulating effects of the remedies are those from which the benefit is to be derived, any of the class may be made use of.

The bowels in pertussis are to be kept freely open during the whole continuance of the disease, though we are not convinced that any advantage will be derived from active purging. The castor oil, senna tea, or in older children, calomel, followed by castor oil, will in most cases fully answer our purpose. These articles are to be repeated as occasion may require.

After the disease has passed through its first stages, and appears to consist almost entirely in a spasmodic affection of the respiratory organs, unattended with inflammation or febrile excitement, the treatment consists almost entirely in the exhibition of antispasmodics, narcotics and tonics; certain articles of each of which classes have been supposed more particularly adapted to the disease before us.

The best article at the stage referred to, is, perhaps, a watery solution of assafoetida; when properly timed, it will seldom be found to fail in very speedily removing the cough and other remaining symptoms. The only difficulty is that some children can not be prevailed on to take it, in consequence of its nauseating smell and taste. The dose must of course be adapted to the age of the patient.

The artificial musk obtained from the action of nitric acid upon oil of amber, has been recommended by some as a very efficient remedy, and in obstinate cases may be tried.

Almost all the narcotics have at different times been employed in pertussis. Opium, except in extremely minute doses, combined with an expectorant or diaphoretic, we should consider a very doubtful if not dangerous remedy, especially in cases of

the disease occurring in young as well as in robust children. It has, however, the recommendation of many respectable practitioners, and Dr. Willan states that he has found a watery solution of opium more useful than any other narcotic. Dr. Butter extols the extract of hemlock in the highest terms, both internally, and externally, in plasters and cataplasms; but in the hands of other practitioners it has by no means been attended with the same success.

By most of the European practitioners, the belladonna is preferred to all other narcotics in the disease before us. Borda considers that he has saved the lives of children apparently past recovery, by the exhibition of this remedy; several of the German practitioners consider it as little less than a specific in pertussis; and according to Alibert, the article has been equally successful in the practice of the French physicians. An excellent prescription in the chronic form of the disease is, magnesia, five grains; ipecacuanha, a quarter of a grain, and belladonna, one sixth of a grain, for a child one or two years old.

To the bark Cullen trusted almost exclusively. I consider, he says, the use of this medicine as the most certain means of curing the disease in its second stage, when there is but little fever present. It will seldom fail to put an end to the remaining symptoms. Floyer, Morris, and many of the German practitioners also, strongly recommend the bark. It is proper only during the period pointed out by Cullen. Of course, the most eligible form for children will be the sulphate of quinia.

The acetate of lead was first recommended by Dr. Forbes of Edinburgh, in the form of solution. It is, however, a remedy from which unpleasant symptoms are so apt to result, that it should be given to young children with a very great deal of caution.

The arsenic, in the form of Fowler's solution, has been recommended by Mr. Simmons, of Manchester, Eng.

He asserts that it will moderate the symptoms of the disease in a few days, and generally effect a cure in a fortnight. Dr. Ferriar also speaks highly of the arsenic in the second stage of the disease; other physicians have likewise found advantage from the use of the remedy.

Besides the above, various other remedies have been proposed; we believe, however, that the above are those upon which our dependence should be chiefly placed.

The diet in whooping cough should be light, easy of digestion and moderate in quantity. The patient should breathe a pure air, and be carefully guarded, by appropriate clothing, against cold and damp. In the chronic form of the disease, warm bathing, change of air, and regular gentle exercise, will be found of great advantage.

BREAST PANG.

Angina pectoris, or breast pang, is a disease marked by an acute constrictive pain, seated at the lower end of the breast bone, inclining towards the left side, coming on in paroxysms and accompanied with great uneasiness, difficulty of breathing, violent palpitation of the heart, and a sense of impending suffocation.

In the first stage of the disease, the pain is felt chiefly after some exertion, as going up stairs, or up a hill, or walking quickly, particularly when the stomach is full; but in the more advanced stages, slighter exertions are sufficient to cause a paroxysm of pain, as walking, riding, coughing, sneezing, or speaking; passions of the mind also have the same tendency. In the first stage, the uneasy and threatening symptoms soon go off; but afterwards they continue longer and are more distressing, causing the patient to fear immediate dissolution. During the paroxysm, the pulse is feeble and irregular, the face pale, and covered with a cold sweat, and the patient appears as if in a fit of apoplexy, without the power of sense or motion. The disease makes occasional attacks, at longer or

shorter intervals, for years, and at last suddenly puts a period to the patient's life.

The breast pang is believed by some to be chiefly owing to an ossified state of the vessels which nourish the heart, by which its powers are weakened, and it is rendered unable to empty itself properly; so that, upon any exertion of body or mind, by which the blood is sent back to the heart more quickly than usual, that organ is unable to send it through the lungs, and hence the distressful symptoms above noted. But the symptoms of the disease and the examination of bodies after death scarcely warrant this conclusion, as this state of the arteries has not been found even in very severe cases; and the manner in which it attacks and goes off by paroxysms, does not seem to be dependent on so permanent a cause as ossification. It rather appears to be of a spasmodic or convulsive nature, as is shown by the manner of treatment, which is sometimes successful by stimulants and antispasmodics. It is found to attack chiefly those who are of the make which has been supposed most liable to apoplexy, viz. those with large heads and short necks, and who lead a sedentary, luxurious and inactive life, who are disposed to be corpulent, and especially such as are of a gouty habit. It seldom attacks persons under the age of fifty.

The cure and prevention consist in diminishing the quantity of blood in the system, by small bleedings and spare diet, and avoiding every thing that would quicken the circulation. In the fit, stimulants must be very cautiously employed, the head and temples are to be bathed with cold water and vinegar; a slight bleeding should be used to relieve the overloaded heart, gentle pressure employed on the left side to empty the heart; sinapisms should be applied to the extremities, and on the appearance of returning respiration, ammonia is to be applied to the nose. The disease has been mitigated by forming issues in some

part of the body. Also by blisters, or tartar emetic ointment applied to the chest. Sinapisms to the ankles, and active purgatives, are almost always beneficial.

They who are subject to this disease, should carefully shun all mental irritation, and every gust of passion that would hurry the circulation. Moderate exercise should be daily taken in the open air, but no violent exertion should be ventured on; and all attempts at going up a rising ground should be avoided, or if made, they should be with the utmost care. The food should be plain, moderate in quantity, and easily digestible; such as is not liable to occasion flatulence. Fermented and distilled liquors are altogether improper. On any approach of fullness of blood, animal food should be entirely withdrawn from the diet, and mild saline purgatives frequently taken. A perpetual blister or other irritation in the region of the heart is useful, and warm bathing to the feet and legs will help still further to prevent the undue flow of blood to the other parts of the body.

ASTHMA.

This disease consists in a difficulty of breathing, for the most part temporary, and occurring at uncertain periods, accompanied with a wheezing sound, and a sense of constriction in the chest, with cough and expectoration. Asthma may be produced either by a diseased condition of the lungs themselves, or a sympathetic disturbance of these organs from disease of the stomach and bowels; or it may arise from organic disease of the heart and large blood-vessels, or from some contamination in the air respired. In the latter case, it will of course be of accidental occurrence and of short duration.

Asthma is commonly divided into two species; the dry, spasmodic, or nervous asthma; and the humid, or habitual asthma. In the former, the fit is sudden, violent, and of short duration; the constriction of the chest

very considerable, and of a spasmodic kind; the cough slight, and the expectoration scanty, and only appearing towards the close of the fit. In the second species, or habitual asthma, the paroxysm is gradual and protracted; the constriction of the chest is less, and the breathing peculiarly laborious; the cough is severe, and more or less constant; the expectoration commences early, soon becomes copious, and affords great relief. The spasmodic asthma is comparatively a rare disease, not one case occurring for, perhaps, fifty cases of habitual asthma.

Asthmatic paroxysms are usually preceded by languor, flatulency, loss of appetite, nausea, headache, drowsiness, pale urine, disturbed rest, and pain in the head. Soon a sense of tightness and stricture is felt across the breast, with distressing straitness of the lungs, impeding respiration; the difficulty of breathing continues to increase; both inspiration and expiration are performed slowly, and with a wheezing noise; the speech becomes difficult and uneasy; a propensity to coughing succeeds, followed by the most anxious difficulty of breathing; the patient is threatened with immediate suffocation, and is obliged instantly to rise from an horizontal position, and rush into the open air. The face is sometimes turgid, and of a livid hue; at others it is morbidly pale and shrunk. These symptoms continue for a longer or shorter period, when they gradually decline, the fit being generally terminated by an expectoration of mucus. Notwithstanding the violence of the attack, it is very seldom that asthma proves fatal at the time.

In spasmodic asthma, the patient soon recovers from the fit, if we except a sense of weariness and more or less debility; and when the weather is warm and favourable, he may continue for weeks or months free from difficulty of breathing or cough; but in the humid or habitual asthma, although weeks may be sometimes passed without a severe fit, yet the sufferer, for the most part, labours under continual

difficulty of breathing, accompanied with a wheezing noise, and more or less cough.

The exciting causes of asthma are numerous, and among the chief of them we may reckon, hereditary predisposition,—a cold and moist atmosphere,—sudden changes of temperature,—removal from a healthy spot in the country to a crowded and populous city,—suppression of long-accustomed evacuations,—mechanical constriction of the chest. Yet all these may be resolved into an irritation of some kind or other, existing within the cavity of the chest, and stimulating its moving powers to a convulsive constriction. In such instances, the asthma is a primary affection originating in the chest; but we have already remarked, that this disease not unfrequently occurs secondarily, and as a mere symptom, or result of some other complaint, or of a diseased state of some remote organ, as the stomach, bowels, or liver, when it is only to be removed by removing the remote disorder on which it is dependent. Hence, it is of the utmost importance that, in every case of the disease, we should trace out its actual cause, so as to determine whether it has its seat primarily within the chest, or in a more remote part.

When once asthma is established, a recurrence of the fit may be readily excited by any excess or imprudence in diet, or any unusual exertion of body or mind. Indeed, whatever greatly deranges the functions of the stomach and bowels, is invariably a very common and powerful exciting cause of the fits. Although asthma is not, generally speaking, immediately dangerous, frequent returns of it are, nevertheless, liable gradually to induce incurable disease of the heart, or lungs, and thus to occasion a fatal termination. These facts evince the importance of an unceasing attention in avoiding its constitutional or occasional causes.

When the fit is on, or felt to be coming on, the patient should have his feet and legs immediately immersed in

warm water; he should drink frequently of some mild diluting liquor made warm, as barley water, or very thin gruel, into a pint of which, two or three tea-spoonfuls of aromatic spirit of ammonia may be put; and if there be much pain about the chest, the part may be fomented with hot flannels, or bladders filled with hot water. A draught, consisting of twenty drops of the solution of acetate of morphia or of laudanum, with half a drachm of ether, and an ounce and a half of mint water, will sometimes be very useful; or a few drops of the acetate of morphia may be given in a breakfast-cupful of strong coffee; to be repeated three or four times in twenty-four hours, if necessary. Sir John Floyer, and Sir John Pringle, both confidently recommended coffee; and the latter eminent practitioner says, that it is the best abater of the periodic asthma that he had seen. The best Mocha is to be preferred, which should be newly burnt, and made very strong immediately after grinding it.

An emetic of twenty grains of ipecacuanha powder, is often attended with great benefit on the accession of the fit, and may be beneficially employed afterwards, once in three or four weeks. The emetic determines to the surface of the body, promotes expectoration, and greatly relieves the chest; but if the patient is averse to it, he may take instead, three grains of compound ipecacuanha powder, made into a pill with conserve of roses, every second or third hour till the fit abates. The inhalation of the steam of hot water will sometimes give relief during the paroxysm. This may be repeated frequently if it agrees, and the severity of the disease makes it desirable.

If the bowels are confined on the accession of the fit, they should be relieved by the exhibition of a laxative clyster, or by administering a dose of calomel and rhubarb, or calomel and magnesia; but active purging is almost invariably to be avoided.

Dr. Bree, the able author of an approved work on disordered respiration,

advises the following draught to be taken every three hours, during the paroxysm: extract of henbane, three grains; diluted nitric acid, thirty drops; tincture of squill, fifteen drops; water, an ounce and a half.

Asthma is frequently observed in middle-aged and elderly persons, to assume much of the character of a slow inflammation and obstruction in the lungs, being attended with a good deal of pain in the chest, feverishness, and hard pulse, especially in the winter and spring, and then, after cupping the chest, an infusion or decoction of senega is a very useful medicine. In such cases, while the feverishness continues, it must be united with a saline medicine, as three drachms of the solution of acetate of ammonia, to an ounce and a half of decoction of senega, which may be taken at a draught, three or four times a day. Blisters to the chest in these cases will also be found beneficial. When the febrile state gives way, the following may be taken, which will be found to promote expectoration, perspiration, and the flow of urine, in a powerful manner: namely; decoction of senega, an ounce and a half, or two ounces; vinegar of squill, half a drachm; paregoric elixir, half a drachm—for a dose; to be taken three or four times a day. This combination will often be useful in the intervals of the paroxysms; and the dose of squill may be increased if necessary.

When asthmatic paroxysms occur in young, robust, or full habits, and particularly when the disease is recent, a bleeding from the arm will be found to abate the violence and shorten the duration of the fit. When general bleeding is not thought advisable, cups should be applied to the chest.

During the intervals of the fits, the most valuable medicines are ammoniacum, assafoetida, squill, senega, ipecacuanha, preparations of zinc, or steel, and mercurial alteratives, combined with such a diet and regimen as are calculated to invigorate the digestive functions, the organs within the chest and the constitution at large. In some

cases, where no inflammatory symptoms are present, the following pills are very serviceable: gum ammoniac and gum assafoetida, of each, one drachm; powder of ipecacuanha, fifteen grains; Peruvian balsam, a sufficient quantity to form the whole into a mass, to be divided into thirty pills. Two or three of these are to be taken twice or thrice a day. Or, we may employ the following:—compound squill pill, a drachm; powder of ipecacuanha, twelve grains; purified Turkey opium, three grains; camphor, a scruple: divide into twenty pills, and take two three times a day.

The compound tincture of benzoin, when good, is sometimes a useful medicine, and may be taken to the extent of thirty or forty drops, three times a day, on a lump of sugar.

We have already adverted to the value of occasional emetics of ipecacuanha in the intervals. They are almost invariably useful, especially in habitual asthma, and may be advantageously repeated once a month, whatever other medicine is taken. Twelve or fifteen grains of ipecacuanha is a proper dose.

There can be no doubt, that asthma may frequently be much relieved by the skilful employment of mercurial alteratives, and particularly when it is connected with a deranged state of the digestive organs, and symptoms of chronic disease of the liver, spleen, or other internal organs. Under such circumstances, a pill of blue mass, five grains; soap, three grains; and ipecacuanha, one grain, may be taken every night, in addition to any other medicine that may be resorted to during the day. This pill may be advantageously persevered in for several weeks.

Occasional blisters are very advisable, but a perpetual issue or seton, in the side, arm, or between the shoulders, is of still greater effect, and sometimes proves a powerful remedy. It ought never to be neglected in bad cases, for if it fails to cure, it rarely falls short in relieving.

Dr. Wilson Philip has discovered, that, in habitual asthma, the application of galvanism is often of great benefit, and sometimes effects a complete cure. He states, that it seldom fails to relieve the difficulty of breathing, and the symptoms of indigestion present. The galvanism is applied in the following manner:—Two thin plates of metal, about two or three inches in diameter, dipped in water, are applied, one to the nape of the neck, the other to the lower part of the region of the stomach. The wires from the different ends of the trough are brought into contact with these plates, and as great a galvanic power maintained as the patient can bear without complaint. In this way the galvanic influence is sent through the lungs, as much as possible, in the direction of their nerves. It is proper, constantly to move the wires upon the metal plates, particularly the negative wire, otherwise the skin is injured in the places on which they rest. The relief seems much the same, whether the positive wire is applied to the nape of the neck, or to the pit of the stomach.

The application of the galvanism is to be discontinued as soon as the patient says the breathing is easy, which varies from five to fifteen minutes. It is remarkable, that in several who had laboured under oppressed breathing for from ten to twenty years, it gave relief quite as readily as in more recent cases.

In all inflammatory cases of asthma, the application of galvanism would be injurious; and in cases arising from dropsy, from disease of the heart or great vessels, or any other mechanical impediment to the action of the lungs, little or no benefit, but often much injury, is to be expected from it.

The smoking of tobacco, or stramonium, is now and then of service, although some physicians object to the practice. It would seem to be more especially applicable to humoral asthma, or that form of the complaint in which the patient expectorates rather copiously, and where there is no great fullness of habit.

A distressing pain sometimes affects the external parts of the head, and generally those of the back part of the head. A blister has been known to afford relief to this pain, but in general, the most effectual remedies are those which are calculated to restore the healthy action of the stomach and intestines.

The diet in asthma must uniformly be light, and easy of digestion, consisting chiefly of fresh animal food, eggs, bread, tea, cacao, &c. A waistcoat of wash leather, or flannel, worn constantly next the skin, from September to May, inclusive, is highly to be recommended.

With respect to regimen, the points most worthy of attention are, to keep the bowels regular, by the occasional use of mild laxatives; to preserve the surface of the body warm, avoiding damp, wet, and the east and north-east winds; and to take daily exercise in the open air, when the weather permits, short of fatigue. Horse and carriage exercise are by far the best. Removal to a milder climate is highly advisable.

DISEASES OF THE HEART.

The heart is subject to various diseases both of its structure and function. Indeed, the alteration of its structure necessarily leads to irregularity of its action. The most severe and the most frequent diseases of the heart, are dilatation of the ventricles, thickening of their walls, and the combination of these two states. The continuance of the *foramen ovale* after birth, perforation of the ventricular *septum*, ossification of the sigmoid valves of the aorta, or of the mitral valve, excrescences growing from these valves, productions of different kinds which may be formed in the heart, are affections much less frequent; and the major part of them generally disorder the health, only when they attain a degree of intensity sufficient to produce increased bulk or dilatation of the ventricles. Dilatation or increased bulk of the auricles, is still less frequent, and is, perhaps, al-

ways, a consecutive affection, produced by a morbid state of the valves, or of the ventricles. Of all these diseases, the general symptoms are nearly the same. Respiration habitually short and constrained; palpitations and stiflings invariably produced by mounting an ascent, by rapid walking, by mental emotions, and returning even without any known cause; frightful dreams, and interruption of the sleep by sudden startings: occasionally the symptoms are the same as those described under the name of *breast pang*; and, lastly, they may be attended by a cachectic paleness, with tendency to dropsical effusion, particularly in the chest, which eventually appears. All of the foregoing symptoms may, to a greater or less extent, occur in persons affected with disease of the heart. In an extreme degree, the symptoms are still more obvious. Incapable of bearing the horizontal position, the patient, seated rather than lying in bed, with his head inclined on his chest, or thrown back on the pillow, retains this position night and day; his face, more or less swollen, is sometimes pale, but, most generally, has a deep violet tint, diffuse, or confined to the cheeks; the lips, swelled and prominent like those of the negro, are most intensely livid, even when the face is pale; the lower extremities, the scrotum, the labia in females, the integuments of the trunk, the arms, and the face even are successively affected with dropsical infiltration. Great derangement of the capillary circulation is denoted by dyspnoea, or oppressed breathing, and spitting of blood, racking pains of the stomach, nausea, amounting sometimes to vomiting, and finally, lethargic stupor, coma, and apoplectic seizure, which too often terminates at once the disease and the life of the patient.

I. *Alteration of the structure of the heart.* 1. *Hypertrophy*, or excessive nutrition, (*active aneurism* of the heart,) consists in increased thickness of its muscular substance, without enlargement in the capacity of the cavi-

ties. The substance of the organ is in general firmer than natural. It may exist in one ventricle only, or extend to both, and it may be general or partial. This disease very frequently induces apoplexy. 2. *Dilatation of the ventricles (passive aneurism)* consists in enlargement of the cavities of the heart, with thinning of their walls. The muscular substance is at the same time unusually soft, sometimes of a violet colour, in other instances pale, and almost yellow. The most general and powerful cause of this, is original conformation. 3. The substance of the heart is *altered in its texture*, sometimes becoming peculiarly firm, at other times soft and flabby. 4. *Ossification* of the tricuspid and semilunar valves is very rare, but that of the mitral and semilunar aortic valves is very common. It appears in general, first in the substance of the base of the valve, and then pierces the covering membrane, so as to render the surface of the valve rough and prominent. Eventually it may affect the margin of the valve, when it produces extreme contraction of the opening. A slight degree of this disease may occur without much derangement in the action of the heart, or serious disorder of the health. 5. *Inflammation of the heart or pericardium.* It occurs in various forms, sometimes with acute pain referred to the pit of the stomach, quick and short breathing, with extreme anxiety and restlessness, pulse very quick; sometimes cough attends.

It is to be treated by active bleeding from the arm, leeches or cups to the chest, followed by blisters, an extremely low diet, perfect rest, and the use, internally, of antimony, digitalis, and other remedies which have the effect of reducing the circulation.

Diseases of the heart are difficult to be distinguished, or to be cured when they are known to be present. Modern physicians consider themselves as having the means of ascertaining their presence by the stethoscope, a wooden cylinder, which, when placed upon any part of the chest, gives a

different sensation to the ear of the examiner, according as the contained organs are in a healthy state or affected with disease. By comparing these different sounds imparted during life, with the appearances observed when there is an opportunity of examining the dead body, they hope in time to obtain a tolerably correct pathology of the diseases of the lungs and heart.

II. *Irregularities in the action of the heart.* These are principally irregularities of pulsation, intermission, and palpitation. 1. *Irregularity of pulsation.* This may consist either in variation of the frequency of the beats, or in some one or more very strong beats, in the midst of regular ones. 2. *Intermission.* This may either be owing to an actual cessation of the heart's action, or to the contractions being too feeble to communicate their impulse to the arteries. 3. *Palpitation.* This is an affection in which the motion of the heart is performed with greater rapidity, and more force than usual; and the patient is affected with difficulty of breathing, with great anxiety, and various uneasy and painful sensations. It arises from various causes, as from violent exercise, from diseases of the heart itself, or of the great vessels; from emotions of the mind, and from all those circumstances which occasion fainting fits. The cure must be very much regulated by what we judge to be the cause. Many of the causes are quite beyond our reach; and all that we can do is to direct a careful avoidance of whatever tends to quicken the circulation, as violent exercise, or going quickly up a height, or over-distention of the stomach; and also to prescribe occasional small bleedings, and such diet as will not occasion fullness of the habit, or give any tendency to inflammatory symptoms. Something may be done by moral management; endeavouring not to let the mind be easily ruffled or harassed, by the sudden and often small accidents, that are so apt to upset the tranquillity of those who do not exert themselves to keep a well-balanced mind.

CONSUMPTION.

Consumption, or *phthisis*, is strictly a wasting or decaying of any part, and is now generally used without any addition in English, to signify the wasting of the lungs.

When a person spits up a great quantity of purulent matter; when he is affected with hectic fever, and becomes extremely emaciated; these are evident and almost unequivocal symptoms of consumption of the lungs. But these symptoms are only the sequel of a long train of others, of which it may be proper to give the detail; premising that many of them may occur in other diseases, and may show themselves without being followed by the plain and aggravated marks of confirmed and fatal consumption. There are certain habits of body, that appear more liable to consumption than others. Persons of a slender make, of long necks, narrow chests, and prominent shoulders, with a florid countenance and sanguine temperament, are those particularly referred to. Instead of general descriptions, let us take a single patient, and trace the progress of the disease in him. He is affected with a slight and short cough, which becomes habitual to him, which he does not at first remark in himself, nor like to hear taken notice of by others. His breathing is easily hurried by any bodily motion, he becomes languid and indisposed for exertion, and also, in some degree, emaciated. This state continues for a year, or more, without his making much complaint about it; but he is more easily affected by cold than formerly, his cough is always increased by it, and he has some affection of the head, nose, and eyes, as if from catarrh. This may be relieved; and the patient and his friends believing he has had only a common cold, little or no alarm is excited, or precautions taken. At length, a cold appears to have been taken, of more than usual severity, the cough becomes more troublesome than before, and continues longer than

that of a common cold generally does. The cough had formerly been only occasional and dry; now it becomes more constant, and there is some expectoration, which is most considerable in the morning. This becomes, by degrees, more copious, thick, and tough; at length of a greenish or yellow colour, and puts on the appearance of purulent matter. When these symptoms have come on, the breathing is at the same time more hurried and difficult, and the debility and wasting are increased. At this time, also, there come on the symptoms of hectic fever; of which it may be proper, in this place, to give the description, although hectic fever is the accompaniment of other diseases besides consumption of the lungs. A hectic fever, though the febrile symptoms are always present, has exacerbations, or an increase of their severity twice every day. The first of these occurs about noon, sometimes a little sooner or later: a slight remission happens about five in the afternoon. This is followed by another exacerbation, generally increasing till after midnight; but after two in the morning a remission takes place, and this remission becomes more complete as the morning advances. Sometimes these exacerbations are introduced by a degree of cold shivering, or a sensation of cold; though the patient's skin, if examined by the thermometer, would show an actual increase of heat. The evening exacerbation is the most considerable; and after no long period, it is accompanied by sweating, which continues to occur through the whole course of the disease, and becomes more and more profuse as it advances. The time of its most distressing and harassing flow is between two and four in the morning. The appetite for food is less impaired in hectic than in some other kinds of fever; but any approach to indulgence, is apt to make the exacerbations more severe. The thirst is not great, and the mouth is commonly moist; as the disease advances, the tongue is free of fur, and even appears raw; and to-

wards the very termination, the surface of the mouth, tongue, and fauces appears red and inflamed, and covered with white and curdy-looking specks, like the most painful form of the thrush in children. The face is commonly pale; but at certain times, chiefly during the exacerbations, there is a flush, and a bright red spot on each cheek. There is a peculiarly blue or pearly whiteness about the white of the eye. A looseness comes on, which baffles all the attempts of art to check it. The weakness of the system is great and increasing, and the wasting is carried to an extent that is almost incredible. Patients have been seen whose countenance looked more ghastly and cadaverous when breathing, than it did when life was extinct. Sometimes watery swellings occur in the feet and legs. The fever is not often attended with headache and delirium; and the state of the mental faculties is one of the most singular and characteristic features of hectic fever, and especially of that disease of which it is the unfailing attendant, pulmonary consumption. While every spectator sees the evident and resistless approach of death, the patient himself is, in many cases, confident and full of hope; and while judicious and pious friends wish to direct the mind to what alone can make the future desirable, they often find the patient devising favourite schemes for the promotion of his recovery, and for distant visionary happiness. Sometimes the elegant and cultivated genius shines out with more than usual brightness, as life goes down; and bequeaths to after times, some of the most delicate effusions of the pensive muse. Sometimes, in more dignified elevation, the soul, looking calmly down on the early wreck of its frail tenement, and, triumphant amidst deploring friends, gives a glimpse of what is to be enjoyed, when its capacities of understanding and affection are satisfied to their fullest extent.

With the symptoms of consumption already described, the cough, expecto-

ration and fever, are going on, and there is generally a pain experienced in some part of the chest. At first, this pain is felt under the breast-bone, and chiefly or solely on coughing; but very often a pain is felt in some part of the side, and to such an extent as to prevent the patient's lying on that side. These symptoms, pretty nearly in the succession above described, though varying a little in their continuance and degrees of severity, occupy more or less time before they come to their fatal termination. In this climate they often take up some years, the symptoms appearing especially in the winter and spring: in the warm weather of summer, they are mitigated or nearly removed; but on the return of winter, they again appear; and after a season or two prove fatal, towards the end of spring or beginning of summer.

There are several diseases of the organs contained in the cavity of the chest, which are found to terminate in consumption. A spitting of blood, a common cold, inflammation of the lungs or some of their coverings, asthma, all have been thought to be the cause of that fatal ulceration of the lungs, which destroys their structure, and the life of the patient. Most of the above-mentioned diseases are frequently seen, and are frequently cured, without consumption taking place; but it is unquestionably true, that a spitting of blood in young persons is always to be dreaded, as it is too often the first indication of consumption. At the same time, it is also to be remembered, that a spitting of blood is a mark of inflammatory action, that it often yields to a judicious employment of bleeding and regimen, and though never to be neglected, it need not inspire the patient or his friends with over-anxiety or alarm. It is the same with the other diseases mentioned; the most prudent methods are to be taken for their removal, remembering the insidious nature of the first symptoms of consumption, and the fatal progress which it makes when once it is begun. It is generally agreed by medical men,

that by far the most frequent subjects of consumption are those who have tubercles in the lungs. By tubercles we mean certain minute hard swellings in the lungs; which are inactive at first, but at length become inflamed, and change into little abscesses, which break and pour out their matter, and give occasion to purulent expectoration. It may now be asked, Who have tuberculous lungs; and how are we to know or suspect the presence of tubercles? It is admitted that persons of a scrofulous habit are those who are most frequently attacked with consumption from tubercles; or that it occurs most in those who are affected with swellings of the external glands, viz. persons of a sanguine temperament, or of a temperament compounded of the sanguine and melancholic, who have smooth fine skins, ruddy complexion, large veins, and soft flesh. Another question of great anxiety is: Are we able to distinguish, by the matter spit up, whether the lungs are in an ulcerated state or not? Different tests have been proposed to ascertain the difference between mucus and pus, but few of these tests can be depended upon; and very accurate chemists and physiologists have confessed, that the matter expectorated in a common cold is, in some of its stages, precisely the same as that from consumption of the lungs; and that the most formidable looking matter has in a few days been exchanged for an improving expectoration, and at last perfect health has been restored. It is from other circumstances than the expectoration, that we are to judge whether the patient is affected with consumption or not. This is a subject attended with very great difficulty indeed, as several diseases of organs within the chest, and foreign bodies getting into the lungs, may give rise to all the symptoms of incurable ulceration of the lungs, which symptoms may yet be recovered from. In a case of diagnosis, which baffles the most skilful and experienced physicians themselves to understand, or to communicate to their own profession

any satisfactory marks of distinction, it would be idle and pernicious to pretend to put the general reader in possession of any tests which could be popularly understood. The diseases resembling consumption, from which patients have sometimes recovered, are the following: Sympathetic cough; irritations of the diaphragm by diseases of the liver, inflammation of the wind-pipe, diseases in certain parts of the lungs themselves, or of their glands and coverings, ulceration in consequence of active inflammation, spitting of blood, and its consequences.

The treatment of those who are supposed liable to consumption, has varied much in different periods; sometimes it has been treated on the stimulant and tonic plan; sometimes with exercise; sometimes on the antiphlogistic plan; and a multitude of remedies have been for a time extolled, and then laid aside and forgotten. They who are of the habit and make described in a former part of this article, or whose parents or relatives have either died of consumption, or who are evidently disposed to it, should pay particular attention to the slightest appearance of the symptoms which threaten the disease, and should take every method for their removal. In such persons, we ought never to hear it negligently remarked, when they are affected with a cough, "Oh, it is only a common cold:" this is too often the commencement of the long train of illness which is to lead them to the grave. A spitting of blood is never to be trifled with; if florid and frothy, it is to be treated by blood-letting and other antiphlogistic means; and all richness of living, and every thing tending to keep up too great fullness of blood, or to increase inflammatory action in the system, must be avoided for years after the spitting of blood disappears. But the common forerunner of fatal consumption is the tuberculous disease; and to prevent the formation of tubercles, to discuss or dissolve them when formed, or to prevent them from getting into a state of inflammation, or to

heal them up when suppurated, are the great *desiderata* in this disease. But the means of satisfying these indications are by no means easily found. One of the first objects to be attended to, is to regulate the diet of consumptive persons; little animal food is to be used, and a great part of the patient's living is to consist of milk, in its various forms, preparations and combinations. Care must be taken by such persons also, that no undue stress be given to the lungs or to the cavity of the chest; and therefore every thing must be avoided, which requires strong exertion of the organs of breathing, such as violent or long-continued exercise, or walking quickly up steep ground: loud or long speaking, or singing, must also be avoided; the person should not play on the flute or other wind instruments, and if he has been in the practice of speaking in public, it must be abstained from. An employment that requires much stooping, is bad for those threatened with consumption; they must, therefore, give up those sedentary occupations which demand stooping upon a seat, or over a desk or counter. A point of primary importance in the management of those who are of the consumptive habit, is the avoiding of exposure to cold; in numberless instances this exposure is to be considered as the exciting cause of the disease. In our variable climate, it is not easy for the most robust and cautious persons to pass a winter without some catarrhal affection; and for the phthisical, who are so peculiarly susceptible of all impressions from the atmosphere, it is almost impossible to avoid it. Hence the necessity of preventing as much as possible all changes of temperature from injuring the body, by the use of flannel or fleecy hosiery worn next the skin; or what is still more approved, an under-jacket of chamois leather. Hence, also, the propriety of removing to a warmer and more equable climate, and avoiding the cold and humid air of a northern winter.

Gestation of various kinds has been

much recommended; and as to the advantage derived from one kind, viz. riding, there is a testimony from Sydenham so strong, that it deserves to be quoted for its singularity. "Neither mercury in syphilis," he remarks, "nor bark in intermittents, is more effectual than riding in consumption; provided the patient takes care to have his linen well aired, and to continue his journey long enough; the longer as he is more advanced in life." Concerning such a testimony from such a man, so accurate an observer, and so candid a relater of what he saw, we must say that it is by far too strongly expressed; and we must add gestation to the long list of consumptive remedies, which have deceived the hopes of both patients and physicians. Without expecting so much from riding as Sydenham did, we may still hold it as true, that riding is a proper and safe exercise, to be tried before patients are too weak to be the better for it; and that many have had their complaints much alleviated, and it would seem even cured, by the practice. Riding in a carriage, or using a swing, are also modes of gestation which may be conveniently resorted to; and a long-established practice is to order patients to take a sea-voyage. One would naturally prefer doing this in the summer season, and recommend going from a colder to a warmer climate. With a view of relieving the lungs, blisters have been recommended; and an issue in some part of the body may be of use. Such are the measures to be employed in cases where we apprehend a future consumption; and in the children of consumptive parents, and in young persons who have had spitting of blood, or who seem by their nature and habit likely to fall into the disease, they should be early, and diligently, and unremittingly employed.

When we are unsuccessful in preventing the advanced stages of the disease, and the expectoration of matter, and when hectic fever is confirmed, it is the part of a humane and skilful practitioner to palliate the predominant

symptoms as well as he can. We are unhappily as yet without any medicine which we know to have the power of curing ulcers in the lungs. A mixture, containing myrrh, has obtained some reputation, and is at least as innocent as other medicines of the same class. To allay the heat, the thirst, and other symptoms of hectic fever, and to cool the system, acids are usefully employed. We give from ten to twenty drops of the elixir of vitriol in a glassful of water, three or four times a day, or we may acidulate the patient's drink with very diluted sulphuric acid: or lemonade may be given, provided it does not produce too great laxity of the bowels, or sourness of stomach. When there occur acute pains referred to some part of the chest; when the skin is hot and dry, and the pains are increased by drawing a full breath; then, notwithstanding the apparent weakness of the patient, it will be quite necessary to take away a little blood; and though the disease ultimately is to prove fatal, repeated small bleedings give great relief, and on the whole, prolong the patient's life. In those circumstances, too, repeated blisters to the breast are necessary; and it is better to allow them to heal quickly, and put them on afresh, than to keep a discharge by an issue. Expectorant and emollient mixtures for the cough, are to be given through the whole course of the disease. These are made of squill as the active ingredient, joined with balsam of Tolu, syrup, and cinnamon water, or peppermint water; but large quantities, or many varieties of cough mixtures, as they are called, are unnecessary and improper. The cough is one of the most distressing and pertinacious of the symptoms of consumption; and for the relief of this, our great dependence is upon the various preparations of opium. There are, however, some disadvantages in the use of opium; it has a tendency to induce costiveness, and to check the expectoration; to increase the feverish heat, and the already profuse perspiration: but the cough, the

irritation, and the sleepless nights, are the principal sources of pain and suffering; and as we have not a more soothing drug than opium, we must be content to use it with all its drawbacks, and counteract its injurious tendency by other means.

Another very troublesome symptom is the looseness of the bowels, which is both a cause and a sign of great debility; and which is with great difficulty checked or moderated; indeed, in a great number of instances, it is found to be beyond the reach of medicine. We attempt to moderate this symptom by giving astringent medicines, as catechu, or decoctions of logwood, or small doses of rhubarb; also by giving opium by the mouth, or by injections. The acetate of lead, combined with opium, in the dose of two grains of the acetate to one of the opium in the form of pill, given at bed-time, has in some instances the power of checking the looseness. The specks in the mouth are another annoying circumstance in the last stage of phthisis. They are to be treated in the mildest possible way, by very slight astringent applications, as a mixture of honey and Armenian bole. It is difficult to abstain from attempting to counteract the helpless debility which forms so prominent a feature in consumption; but we must not venture on nourishing diet, or wine and other cordials, for fear of increasing the cough, the heat, the thirst, and other hectic symptoms. A decoction of quassia, made by boiling six drachms of the bark in two pounds of water, may be given; a wine-glassful three or four times a day, adding eight drops of laudanum to each dose; and one or two grains of the sulphate of iron may be given daily with aromatic powder, or made into pills with a crumb of bread.

It would be wrong to conclude this article, without mentioning the strong hopes that were at one time entertained, that consumption would be cured by the use of foxglove. It is certainly a medicine of very surprising powers, and has great influence on the circu-

tating system; it diminishes the strength and frequency of the pulse in a most remarkable manner, and may be regarded as a most valuable assistant in lessening the violence of inflammatory action. It may be given with this view, when such action occurs in any stage of consumption, either alone in doses of ten drops of the tincture in water three times a day; or added to the expectorant mixtures in the proportion of one drachm to six ounces of the mixture, and a table-spoonful given four or five times a day. But we are not to hope, that any great or permanent good will arise from the use of foxglove in advanced pulmonary consumption.

To the deeply interesting question—Can consumption ever be cured? we reply: That considering the fallacy attending much of our observations and reasoning on disease; considering that there are a variety of affections presenting symptoms not to be distinguished from those exhibited by true pulmonary consumption, which nevertheless get well; considering also that several patients, undoubtedly members of consumptive families, have by proper management been relieved of their ailments, and attained a long life, we should not be justified in giving the decided answer that consumption in every instance is incurable. But we must judge of every particular case by its own merits; must direct the most prudent precautions where the disease is only threatened; and aware of the melancholy results obtained in the experience of the most learned, sagacious, and candid physicians, we must not excite ill-founded hopes, where we see the disease decidedly formed.

DYSPEPSIA.

Stomach complaints, under their various forms, are exceedingly common diseases, and seem to have increased very much in modern times. They prevail most in large cities, among the sedentary, the luxurious, and those of studious habits. The young are generally exempt from them; and they do

not usually make their appearance before the age of thirty or forty.

In a state of health, people are not conscious of having a stomach at all, at least they never think of it, except when their attention is called by the demands of a keen and vigorous appetite,—so smoothly and quietly does the digestive process go on. But no sooner is digestion impaired or interrupted, than the food, which otherwise is acted upon and dissolved into a homogeneous mass by the gastric fluid, runs into a state of fermentation, produces a quantity of acid and wind, and gives rise to the various symptoms, to be afterwards enumerated. Not only does the stomach suffer from the presence of undigested aliment, but when this aliment passes into the *duodenum*, or commencement of the intestinal canal, it there also causes considerable derangement, and it continues to produce irritation, more or less, throughout the whole passage.

Moral causes very much influence the state of the stomach, such as excessive grief, and every kind of mental depression, anxiety about worldly affairs, disappointment in the attainment of some desired object, intense thought, joined to a want of due bodily exercise, and the healthful stimulus of a free and unconfined air. On this account, the city life, taking it altogether, is exceedingly apt to produce disorders of this nature. The influence of a variable atmosphere, also, as tending to derange the biliary secretions, and the sympathy subsisting between the skin and the bowels, is a powerful cause of dyspepsia. Upon those who live in the pure and open air of the country, these atmospheric changes have comparatively little effect; but in cities and large towns, where the whole constitution is more or less debilitated; where the external surface of the body is not habituated to the vicissitudes of the skies; where moral causes are constantly operating injuriously on the digestive organs; and where air, imbued with a variety of deleterious particles, exhaled from every

thing in the animal, vegetable, and mineral kingdoms, is breathed, swallowed, and kept in contact with the skin; the effects are conspicuous in the sallow complexions, imperfect or capricious appetites, and imperfect digestion of the inhabitants. This state of the appetite and digestion, resulting from sedentary habits, impure air, late hours, and mental perturbations, leads to an aggravation of the evil, by the recourse which is had for its relief to high-seasoned dishes and stimulating drinks, by all classes of society, to a greater or less extent. The nerves of the stomach are daily irritated even by what is digested, while the nerves of the bowels are irritated by what is undigested. To these causes may be added the vitiated secretions themselves, not only of the stomach, but of the liver, pancreas, and of all the innumerable glands, that stud the surface of the alimentary canal. These circumstances produce all the phenomena of indigestion, not only as regards the disorder in the organs of digestion themselves, but as respects the innumerable affections of distant parts which take place from sympathy with the stomach and other internal viscera. It is a melancholy fact, that in civilized life, while the host of moral and physical causes of disease that are always in operation keep the powers of the digestive organs below the standard of health, the quantity and quality of our usual food and drink are calculated to impair these same organs, even if they were in a state of the most perfect integrity of function. Hence we need not be at all surprised that the stomach is so frequently disordered, and that dyspepsia, with its numerous train of evils, has become among the most common of our diseases.

Dyspepsia most usually commences gradually, and in a very insidious manner. It may exist for a very considerable time simply as a disorder of the functions of the stomach, but if this is long continued, a general falling-off of the system, a slow inflammatory state of the inner coats of the stomach

and bowels, and sympathetic affections of other parts of the body, almost invariably succeed.

The symptoms attending the case of a confirmed dyspeptic patient are thus accurately described by Dr. Paris. He tells you that he begins to feel his usual avocations irksome and too laborious; that he has long suffered from a bad digestion, which by care and management he had been hitherto enabled to control; but that he has now little or no appetite; that his strength fails him, and that he fears he is "getting into a bad way." He finds that the slightest exercise occasions fatigue, and deluges him with perspiration. On examining the tongue, it will usually be found coated on the posterior part, and on its centre, with a brownish fur; his bowels are by turns constive, and too much relaxed; the pulse at this period is generally slow and small, although it is sometimes hard; his countenance is more pallid than usual; the eyes appear sunken, and the eyelids swollen, and the eyeballs are occasionally injected with yellow streaks. In some cases, heartburn and a sense of oppression are experienced after meals, but in others the patient only complains of languor and extreme listlessness. On some occasions a sense of constriction is felt about the fauces, and a difficulty of swallowing is experienced, as if the esophagus presented some mechanical obstruction to the passage of food. Dizziness, unusual drowsiness, pains in the head, ringing in the ears, a disagreeable taste in the mouth, an altered state of the salivary secretion,—being sometimes limpid like water, and at others thick and ropy,—palpitation, and a sense of faintness, are symptoms which also in a greater or less degree usually distress the dyspeptic sufferer. His hands are alternately hot and cold; in the former state they are dry, in the latter more usually damp. His nights are sometimes, but not generally, disturbed by restlessness and uneasy dreams. He wakes in the morning without that feeling of refreshment

which follows repose in health, and is unwilling to rise from bed, or indeed to move. His limbs ache, the muscles of the trunk are even sore to the touch, and any change of position is attended with inconvenience. Every alteration of the weather is felt as a serious evil; if it become a degree or two colder, he creeps to the fire, and inveighs in terms of bitterness and sarcasm against the variableness of the climate; if its temperature be raised, he is oppressed with heat. His bowels become more and more intractable; the usual purgative ceases to produce its accustomed effect. He increases the dose; and when it does operate, the action is too powerful, and its effects are not easily checked. A diarrhœa is established; and this again, in its turn, is superseded by still more obstinate constipation. "If I could but obtain a medicine," cries the invalid, "that would keep my bowels in a regular state, I should soon become convalescent." There lies the difficulty. The evil arises from the inconstant and unsettled state of the alimentary secretions, and it is not easy to graduate an artificial stimulant, so as that it shall always correspond with the varying state of the organs upon which it is to operate. The depression of his spirits increases as the disease advances; he gives up his case as lost, loses flesh, suffers a thousand distressing sensations, and fancies the existence of a thousand more: wandering pains are felt in the bowels and side, a tenderness in the epigastrium is experienced on pressure, the abdomen is often preternaturally tense, his breathing is occasionally oppressed, a short dry cough oppresses him, and expectoration is extremely difficult. If, under such circumstances, the alvine discharges be inspected, they may present every variety of morbid appearance; they may be unnatural in colour, odour, consistency, figure, or quantity.

The mind becomes at length greatly depressed. Some dreadful imaginary evil seems impending, or some real evil, of trifling importance in itself, is quickly magnified into a terrific form,

attended, apparently, with a train of disastrous consequences, from which the mental eye turns in dismay. If he happen to labour under any chronic complaint at the time, it is immediately converted into an incurable disease, and the distresses of a ruined and orphaned family rush upon his mind, and heighten his agonies. He feels his pulse, and finds it intermitting; disease of the heart is threatened, and the doctor is summoned. If he ventures to go to bed, and falls into a slumber, he awakes in the midst of a frightful dream, and dares not again lay his head on the pillow. The eye may or may not be tinged yellow; but there is a peculiar muddiness or lacklustre in the coats of that organ, with an expression of languor or irritability in the countenance, especially about noon, which are singularly characteristic of the malady, and indicate with unerring certainty its existence to the experienced physician. In people beyond the age of forty-five, there is usually a greater defect of vision, particularly by candle-light, when the digestive organs are disordered, than when the functions of the stomach and liver are in good condition. The urinary secretion is generally disturbed, being either turbid or high-coloured, with more or less of pink or white sediment. It is for the most part rather scanty than otherwise, with occasional irritation in passing it. Sometimes, when the individual is in a state of nervous irritation, it is as limpid as pure water, made every half hour, and in large quantity in the aggregate. The skin and its functions are very much affected. It is either dry and constricted, or partially perspirable, with feelings of alternate chilliness and unpleasant heat, especially about the hands and feet. The skin, indeed, in this complaint, is remarkably altered from its natural condition, and the complexions of both males and females are so completely changed, that the patients themselves are constantly reminded, by their mirrors, of the derangement in the digestive organs. The intimate symp-

thy between the external surface of the body, and the stomach, liver, and alimentary canal, is now universally admitted, and explains the reciprocal influence of the one on the other. Many of the remote causes, indeed, of indigestion and liver affection, will be found to have made their way through the cutaneous surface. One of the most striking phenomena attendant on derangement of function in the liver and alimentary canal, is loss of flesh and of muscular power. The emaciation is easily accounted for, by the deficient supply of nutriment.

But the loss of strength, in this complaint, is out of all proportion to the waste of flesh. This is one of the most characteristic features of the disease, and is much more connected with nervous irritation in the stomach and bowels, than with disorder of the liver. It is a *sense* of debility rather than actual debility; it is infinitely more distressing than real weakness. The least exertion, even that of stooping to take up a book, or stretching out the arm to take hold of any object, will cause such a feeling of inability for muscular action, as quite depresses the spirits of the individual. Yet, perhaps in less than three hours after this, when the food has passed from the stomach, or its remains from the bowels, the same individual will be capable of walking a mile with comparatively little fatigue. This is a point which should be particularly inquired into, when questioning the patient; for the state above described is not one of actual debility, but of irritation. The patient may, it is true, be much weaker than when in health, but this debility is uniform, and proportioned to the decrease of muscular fibre; whereas the distressing sense of debility, now under consideration, is out of all proportion to the emaciation, is not uniformly the same, and is always greater when there is food in the stomach, or bad secretions in the bowels, than when the alimentary canal is entirely empty. It is, in fact, a sympathetic debility, from nervous irritation in the

stomach or bowels. The distinction between these two kinds of debility is the more necessary, as the treatment is somewhat different. Bark, wine, rich food, and tonics, are not the remedies for debility arising from irritation of the stomach and intestines. The wretched feeling from this source is exasperated rather than relieved by tonics and stimulants, unless in certain stages and when they are very carefully employed in combination with soothing medicines, and diet of very easy digestion.

From the enumeration we have given of the causes which bring on disorders of the digestive organs, it must be obvious that much depends upon avoiding or removing such causes, in order to remove the disease. For this purpose, then, the utmost care should be taken to regulate the quantity and quality of the food and drink; to persevere in regular active exercise in the open air; to attend to the state of the clothing; and to obviate as much as possible all deleterious moral causes.

In this disease, perhaps more than any other which affects the human body, more will depend upon regulation of the food, drink, and exercise, than on all the medicines which can be taken. There are, however, many symptoms which occur in the confirmed disease, which it is necessary to get the better of, at the same time that the diet, &c. is regulated.

Acidity of the stomach is a very frequent attendant on indigestion, and seems to arise from the food passing into a state of fermentation; hence, acid and wind are generated. One or two tea-spoonfuls of calcined magnesia, or twenty or thirty grains of carbonate of soda, or ten of carbonate of ammonia, taken in any aromatic water, provided there is no degree of inflammation of the stomach present, is the best means of obviating this; at the same time, attention to the state of the bowels and to the diet is highly necessary.

Purgatives. The bowels are always deranged when the stomach fails to

perform its offices properly. Sometimes, in particular, constitutions, there is obstinate costiveness, but more generally there is a looseness and irregularity of the bowels: in most cases, the cautious use of gentle purgatives is necessary; but severe purging, or the frequent repetition of purgatives, is always to be avoided in this complaint.

In general, one or two of the compound rhubarb pills of the shops, taken at bed-time, will gently open the bowels, and clear the stomach; or if a stronger pill is necessary, one, or two, or three, of the compound colocynth pill may be taken; or an infusion of two or three drachms of senna with as much Epsom salt.

Where there is derangement of the biliary organs, Mr. Abernethy is in the constant practice of prescribing the mercurial, or blue pill; one of them to be taken at bed-time, and to be followed by a dose of senna, or any of the neutral salts, in the morning.

Small doses of calomel may also be given in these cases, combined with any other mild purgative. Dr. Yates speaks in high terms of commendation of the sulphate of potass. "It appears to me," says he, "to have a more specific effect on the duodenum than the sulphate of magnesia. I give one scruple of it twice a day in the infusion of quassia, and three grains of the blue pill, with or without two grains of extract of aloes, according to the state of the bowels."

A few grains—from five to six—of rhubarb alone, or from ten to thirty grains of rhubarb and magnesia, may be often a useful purgative when the person is delicate, or the stomach irritable.

When there is great irritation of the stomach and bowels of long standing, and when there is reason to suspect a slow inflammatory affection of the mucous coats of the stomach and bowels, purgatives will produce but a very temporary relief; and, if injudiciously administered, will greatly aggravate all the more troublesome symptoms of the

complaint. Under such circumstances the application of leeches to the seat of the pain or tenderness at the upper part of the abdomen; and the utmost strictness of diet, which should be confined entirely to farinaceous substances, are the means of cure chiefly to be depended upon.

Flatulence very generally accompanies indigestion, and is a symptom only to be cured by attention to the other general rules. Dr. Paris says he has found small doses of the extract of hyosciamus, combined with two grains of ipecacuanha, produce relief in attacks of flatulence which have resisted the ordinary methods of cure.

Carminatives give but a very temporary relief, and in many cases are decidedly injurious.

Diet for Dyspeptics. All crude vegetable substances should be avoided. Solid animal food, of the easiest digestion, is to be used, with stale bread or biscuits. In extreme cases, farinaceous food alone, such as gruel, arrow-root, sago, &c., should form the diet, small quantities being taken at a time, at proper intervals.

On this subject, Dr. Johnson has the following observations:—"There is a great error committed every day, in flying to medicine at once, when the functions of the stomach and liver are disordered, the secretions unnatural, and the food imperfectly digested. Instead of exhibiting purgatives day after day, to carry off diseased secretions, we should lessen and simplify the food, in order to prevent the formation of these bad secretions. In doing this, we have great prejudices to overcome. The patient feels himself getting weaker and thinner, and he looks to nourishing food and tonics for a cure. But he will generally be disappointed in the end by this plan. From four ounces of gruel every six hours, he will, under many states of indigestion, derive more nutriment and strength, than from half a pound of animal food and a pint of wine. Whenever he feels any additional uneasiness or

discomfort, in mind or in body, after eating, he has erred in the quantity or quality of his food, however restricted the one, or select the other. If the food and drink irritate the nerves of the stomach, they must be reduced and simplified, down even to the gruel diet above alluded to. I have known dyspeptic patients gain flesh and strength on half a pint of good gruel taken thrice in twenty-four hours, and gradually bring the stomach, step by step, up to the point of digesting plain animal food and biscuit. On six ounces of animal food, a biscuit, and a glass of water, I have known invalids dine for months in succession, and attain, on this regimen, a degree of strength and a serenity of mind beyond their most sanguine hopes. In all or any of the various forms of dyspepsia which have been described, then, the diet is the first thing to be regulated. But it is quite preposterous to prescribe a certain quantity, or even quality of food and drink, till the power of the digestive organs is ascertained. If, a few hours after eating, the patient feels a sense of distension in the stomach and bowels, or any of those symptoms of indigestion which have been pointed out; if he feel a languor of body, or a cloudiness of the mind; if he have a restless night; if he experience a depression of spirits, or irritability of temper next morning,—his repast has been too much, or improper in kind, and he must reduce and simplify till he come to that quantity and quality of food and drink for dinner, which will produce little or no alteration in his feelings, whether of exhilaration *immediately* after dinner, or of discomfort *some hours* after this meal. This is the criterion by which the patient must judge for himself. The scale of diet must be lowered and simplified down to water gruel, if necessary, otherwise a cure can never be expected. But the invalid may ask, “can I not have my ailments removed without abridging my appetites?” No! And the practitioner who undertakes the treatment under such conditions,

betrays either a want of principle, or a want of judgment.

Although there is much peculiarity of disposition, in regard to diet, observable in different individuals, and therefore some latitude to be allowed on this account; yet experience has shown, that however the proper *quantity* of food may differ in different constitutions, there is one broad rule as to *quality*, which is seldom inapplicable to more than one in a hundred dyspeptics.

The least irritating, and the most easily digested aliment, is unquestionably farinaceous food, at the head of which we may place good gruel. I have known many who could digest only this, without unpleasant sensations in the stomach or other part of the body. When such is the case, the nerves of the stomach are in a high degree of morbid sensibility, and great caution should be taken not to irritate them by attempts at more nutritious food. No person is in danger of starvation who can take a pint, nay, only half a pint, of good gruel in the twenty-four hours. Arrow-root, sago, tapioca, rice, salep, are all in the same class; but few of them will bear repetition so well as gruel.

When the nerves of the stomach have been kept free from irritation for a certain time by this mild regimen; when the tongue cleans, the sleep becomes more refreshing, and the intellectual feelings and functions more tranquil, beef-tea may be mixed with the gruel, then half an ounce or an ounce of chicken ventured on, and gradually increased. Whenever any uneasy sensations of mind or body occur, within the twenty-four hours after this trial of animal aliment, it should be decreased; or, if that will not do, wholly omitted, and the farinaceous food resumed. If no bad effects follow, the quantity of chicken may be progressively increased to six or eight ounces, with stale bread—but not too much of that. No particle of any other vegetable matter should yet be ventured on. While the farinaceous regi-

men is necessary, no drink should be taken, unless thirst be urgent, in which case barley water, or toast and water, in small quantity, may be allowed. When the chicken can be borne, the drink should vary in quantity, according to the feelings of thirst, and the number of ounces of the animal diet which can be tolerated.

From poultry, the dyspeptic should cautiously ascend to mutton or game, dressed in the simplest manner, and still with stale bread or biscuit. We should strongly advise that the *quantity* should never exceed half a pound in weight, even when that can be borne without a single unpleasant sensation succeeding. It is quite enough, and generally too much. The invalid will acquire a degree of strength and firmness, not fullness, of muscle, on this quantity, which will, in time, surprise his friends, as well as himself. When arrived at the power of *digesting* six or eight ounces of mutton, he may vary the kind of animal matter considerably. Lamb, hare, tender beef, tripe—nay, venison may be taken, provided the golden rule be observed of always keeping to the *quantity* which produces *no languor after eating—no unpleasant sensation of mind or body during digestion*. We can not urge this rule too strenuously on dyspeptics. Their happiness—perhaps their welfare—and the happiness and welfare of many who are connected with them, depend on its strict observance.

It is needless to dwell on the endless catalogue of *improper dishes*. All are improper for the dyspeptic, or at least *dangerous*, that are not included in the above list. Even a mealy potato will often irritate the nerves of the stomach, (without any perceptible sensation *there*,) and pass undigested, after producing a great deal of wretched feeling in distant parts of the body. The same may be said of every kind of fruit and crude vegetables. There is such a tendency to form acidity in the weak and irritable stomach, most vegetable matters are so prone to aci-

dify, and acid is so peculiarly offensive to the morbidly sensible nerves of the intestines, that the dyspeptic invalid can not be too much on his guard against fruit and vegetables of every description, with the exception of the farinacea, however innocent they may seem to be, as connected with disagreeable feelings in the stomach itself. As for cheese, pickles, nuts, onions, and a variety of provocatives, they are rank poison in dyspepsia, and as such should be religiously avoided.

In respect to drink, our firm conviction is, that water is the best. The sooner that every species of stimulating drink can be laid aside, the better. A cup of coffee after dinner is far preferable to wine. Malt liquors are quite out of the question—they cannot be taken with safety in any quantity.

The other meals are of some consequence to be attended to by the dyspeptic invalid. In the morning, if the nervous irritability is not in the highest degree, (necessitating the use of gruel,) coffee or Bohea tea, with well toasted bread, cold, and very little butter,—or, what is better, a little cold meat, may be taken,—and nothing more till dinner, if at two o'clock. Where tyrant custom compels to dine late, a slice of cold meat and biscuit should be taken at one o'clock. The tea should be the same as the breakfast, but without animal food;—and a cup of gruel is the best supper. Where farinaceous food can be relished for breakfast, it is certainly better than tea; and the milk or cream should be sparingly used.

Bitters, or Tonics. The indiscriminate use of the various bitters in stomach complaints, often does a great deal of mischief, and, in many cases, only aggravates the disease, instead of alleviating it. Many hypochondriacs have been driven into a state of insanity by the stimulation of wine and tonics, when the morbid sensibility of the stomach was in a high degree. Wine and tonics, like opium, will overpower the sensibility of the nerves for a few hours, in these cases, and some sleep may follow; but the terrible ex-

asperation of irritability which succeeds, when the first effects of stimulation are over, have produced many an act of suicide, besides the thousand lower grades of mental misery, to which the unfortunate dyspeptic and hypochondriacal invalid is subjected by injudicious treatment. The dreadful depression of spirits and despondency of mind, resulting from this temporary exhilaration and excitement, are so much the more dangerous, as they too often lead to a repetition of the baneful causes that produced them.

When there is simply a want of tone in the stomach and system generally, without any intestinal irritation, or derangement of the biliary organs, bitter remedies are most useful. Various substances, possessing the bitter principle, are in common use, such as quassia, gentian, colombo, &c. &c. The preparation from Peruvian bark, or quinine, has now almost superseded all these, and is the most convenient, powerful, and pleasant, that can be taken. It may be used in the following manner: sulphate of quinia, four grains: aromatic sulphuric acid, thirty drops; tincture of gentian, one ounce—mix. A tea-spoonful to be taken thrice a day, in a glass of toast and water.

Bitters should in no case be used till the stomach and bowels are sufficiently cleared and corrected by mild laxatives, and until all symptoms of irritation have been obviated; nor should they ever be used when a full and indiscriminate diet is still persisted in.

Dr. Abercrombie recommends the following powder as a useful tonic and aperient: sulphate of zinc, two grains; aloes, one grain; aromatic powder, five grains: to be taken three times a day.

Mineral waters. Watering places are generally resorted to by invalids. As affording a change of scene and air, they may be highly advantageous. The waters, too, so far as they are gently laxative and tonic, are beneficial; but they should never be drunk

in the very large quantities they usually are by invalids resorting to them. To the stomach with weak digestive powers, such large potations of fluid are calculated to do far more mischief than good.

Blisters over the region of the stomach have been repeatedly used with advantage, especially in cases of intestinal irritation, accompanied with tenderness on pressure; and in cases, also, of obstinate vomiting.

The external application of heat to the region of the stomach will often allay pains from indigestion, and aid the process of chymification. The application of heat to the feet will be attended with the same beneficial consequences. Frictions with the flesh-brush deserve a distinguished place among the means of cure, and are not sufficiently practised in modern times. "If it were necessary to illustrate the utility of friction," says Dr. Paris, "we have only to adduce the well-known effects which are produced on horses by the operation of currying, and which can alone depend upon freeing the surface from the recementitious part of the perspirable matter, and promoting a due circulation in the skin. In thus making them sleek, they become more gay, lively, and active, and will preserve their strength with half the quantity of food, than when it is given to them without such assistance."

Tepid bathing, and, when it is found to agree with the constitution, sea bathing, will also be found of great service to the dyspeptic. Due attention to clothing will be of the greatest consequence; the effects of changes of atmosphere on the sympathies existing between the skin and bowels have already been alluded to. The clothing should be so regulated as to preserve an equal temperature, and should neither be too light in summer, nor too warm in winter.

Dyspeptics should rise early when their powers have been refreshed by sleep, and actively exercise themselves in the open air, till they feel a slight degree of fatigue.

The dyspeptic patient should rise from his bed as soon as he wakes in the morning; for, as Mr. Abernethy justly states, 'many persons upon first waking feel alert and disposed to rise, when, upon taking a second sleep, they become lethargic, can scarcely be awakened, and feel oppressed and indisposed to exertion for some time after they have risen.' After rising he should walk, or rather saunter, for some time in the open air, previously to taking his breakfast, the material of which is to be selected according to the principles already discussed. He is now in a condition to follow his usual avocations; but it is a circumstance of no slight importance to procure an evacuation at this period, which is easily effected by habit; a person who accustoms himself to the act at a certain hour of the day, will generally feel an inclination at the appointed season. The invalid should not allow his occupations, if sedentary, to engage him for more than three hours, after which, exercise on horseback, or by walking, should be uniformly taken. The state of the weather ought not to be urged as an objection to the prosecution of measures so essential to health. Where the season of the year, and the situation of the patient, will allow the exercise, we strongly urge the advantages to be derived from digging; the stimulus thus given to the abdominal region is highly salutary in dyspeptic affections. The hour of dinner should not be later than three o'clock, and the patient should rest for an hour before he sits down to the meal. It is essential that the invalid should enjoy rest for at least two hours after dinner; that is to say, he should not enter upon any occupation or diversion that may occasion the slightest fatigue; to a gentle walk, or saunter in the garden, there can be no rational objection; on the contrary, they are strongly to be recommended, especially at that season of the year when such a pastime is the most inviting. At eleven, the patient may retire to rest. The bed-room

should be well ventilated, and its temperature should, as nearly as possible, be that of the apartment from which the patient retires. A well stuffed mattress is to be preferred to a bed of down, and the curtains should not be so drawn as to exclude the free circulation of air. The invalid should be careful in not retiring to rest with cold feet: nothing contributes more readily to disturbed sleep, and uneasy dreams, than the unequal circulation which takes place on such occasions.

Dyspeptic Maxims. 1. The first object is to discover the origin and seat of the disease, and the causes which have most likely brought on the complaint.

2. If dyspepsia simply depend upon a loss of tone of the stomach, and a deficiency of the juices necessary for digestion, if there be neither pain, tenderness nor burning in any part of the alimentary canal, then after the bowels have been properly regulated by mild laxatives, bitters and tonic medicines may be given with great advantage; the diet also to be strictly attended to.

3. If there is an irritability of the stomach and bowels, with oppression, uneasiness, flatulence, and a disordered state of the alimentary canal—sometimes costiveness, but more generally an irregular looseness; a rigid abstinence from the usual full diet, and all stimulating liquors, together with regular exercise, the occasional administration of gently laxative medicines, and the frequent use of the warm bath and frictions to the surface, are indispensable for a cure.

4. If this state of the stomach and bowels be combined with derangement of the biliary organs, small doses of mercurial medicines, as calomel or blue pill, are to be joined to the other laxatives, together with due attention in preserving and restoring the proper functions of the skin, by warmth frictions, &c.

5. If the dyspeptic symptoms have continued for such a length of time as to produce an inflammatory state of the membranes of the stomach and

bowels, mild cooling laxatives, occasionally and cautiously employed, bleeding with leeches, and the most strict attention to diet, are indispensable.

6. Acidity and flatulence may be relieved by small doses of magnesia, carbonate of soda, or carbonate of ammonia, joined with aromatic medicines, when no inflammatory symptoms are present; but permanent relief depends entirely on the removal of the disease.

7. All violent purging is injurious in this disease. The bowels should be gently opened, and this regularly, by small doses of mild laxatives.

8. The administration of tonics and aromatic stimulants will always do mischief, when there exists nervous irritability of the alimentary canal, and more particularly so, when there is any inflammation of the internal membranes. Nor should these medicines, in any case, be given until the bowels are regulated by laxatives, and the proper restrictions as to food, drink and exercise, are at the same time put in practice.

9. In slight cases of the disease, the lightest kinds of animal food, and the lean parts lightly cooked, should constitute the diet. All vegetables are to be avoided, with the exception of well-boiled gruel, and stale bread or biscuit.

10. In extreme cases, the food should consist of gruel, arrow-root, rice, or sago, and this only in moderate quantities.

11. A small quantity of food only is to be taken at one meal, observing proper intervals between the meals, that the digestion of one may be completely finished before commencing the other. All excess in food is to be particularly avoided.

12. Active out-door exercise should be taken between meals, and three or four hours after dinner; care being taken not to engage in fatiguing exercise immediately before or after a meal.

13. Active exercise is indispensable for the healthy performance of the different functions of the system. Walking is the best exercise, invalids accus-

toming themselves to it by degrees. Horse exercise is also highly beneficial. Riding in a coach is the lowest species of animal exertion, and is not sufficient to keep up the healthy functions of the body. Travelling, change of air, &c. are highly beneficial to dyspeptics.

14. Friction with the flesh-brush, particularly over the region of the stomach, is highly beneficial, and should be frequently repeated.

15. Tepid bathing may be used with advantage; as also sea-bathing, where circumstances will permit.

16. When moral causes have brought on the complaint, these are to be obviated as much as possible; but, during their influence, a strict attention to abstemiousness in diet, to regulation of the bowels, and to exercise in the open air, will tend very much to obviate and alleviate the sufferings they are calculated to produce.

17. The clothing should be warm and comfortable; and great attention is to be paid to keeping the feet dry and warm.

WATERBRASH.

Waterbrash is a peculiar affection of the stomach, in which the patient brings up frequently a considerable quantity of thin watery liquid, sometimes insipid, at others intensely acid. This complaint attacks, mostly, persons past the middle age, particularly females, and the fit comes on generally in the morning and forenoon. It usually begins with a severe pain at the pit of the stomach, attended with a sense of constriction, and soon after a quantity of thin watery fluid is thrown up, which is sometimes insipid, at other times it is of a highly acid or acrid taste. The causes of this complaint are various, but whatever disorders the stomach may give rise to it. It appears to be owing to a peculiar state of stomachic irritation; and is most certainly relieved by the use of the white oxyde of bismuth, from two to three grains made into pills with extract of gentian, three times a day. This medicine will often perfectly cure

waterbrash ; but attention to the diet and regimen, as laid down under *dyspepsia*, is of much consequence, and will be absolutely necessary in order to render the cure permanent. A diet of plain animal food may be allowed, with which may be united the use of biscuits, home-made bread, and preparations of rice and milk. Daily exercise abroad must also be taken, and frictions, with the flesh-brush, over the region of the stomach and bowels, are of no small service. If the bismuth is not effectual, the following will often be found of great service :—Soap, fifteen grains ; blue mass, fifteen grains ; ipecacuanha, five grains ; extract of belladonna, three grains ; gum myrrh, fifteen grains—divide into fifteen pills, and take one every eight hours. They may be taken alone, or each pill washed down with three table-spoonfuls of an infusion of quassia or gentian.

JAUNDICE.

Jaundice is characterized by yellowness of the eyes and skin, whitish or clay-coloured stools, and saffron-coloured urine, which communicates to substances immersed in it a saffron dye.

It comes on with languor, inactivity, loss of appetite, bitter taste in the mouth, lowness of spirits, and costiveness, or looseness. As it advances in its progress, the skin and eyes become tinged of a deep yellow ; there is a sense of heat and pricking in the skin ; nausea ; vomiting ; a sense of uneasiness or pain in the bowels and towards the right side, and all the other symptoms of indigestion. The stools are of a clay-colour, or white, or very dark ; the pulse is generally slow, yet sometimes, especially where the pain is acute, it becomes quick and hard, and there is then a feverish heat and dryness of the skin.

The disease, when of long continuance, and proceeding from a chronic affection of the liver, or other neighbouring abdominal organ, is often attended with dropsical swellings, and sometimes with dropsy of the belly.

Jaundice is generally described as

of two kinds, viz. the yellow and the green. In the first, the skin and the white of the eyes are more or less tinged of a yellow colour : in the second, the skin and the white of the eyes are tinged of a green colour, more or less mixed with yellow, but the green colour is very predominant. In some parts of the skin the green colour is very deep, so as to have some blackness in its hue ; and this circumstance has given rise to the name of black jaundice, by which this form of the disease has been often distinguished.

The green jaundice by no means occurs so frequently as the yellow jaundice. It is most common at the middle and more advanced periods of life, and appears more frequent in men than in women. It is in general more difficult of cure than the yellow jaundice, though we are not aware that it possesses a more malignant or fatal character.

The most frequent causes of jaundice are, the presence of biliary calculi (or stones) in the gall-bladder, and bile ducts ; spasmodic constriction of the ducts themselves ; pressure upon the ducts, either by collections of hardened excrement, or by tumours of the neighbouring organs, or swelling of the glands in the immediate vicinity of the gall-bladder ; general and severe disorder of the intestines, stomach, and other digestive organs. Costiveness, and a loaded state of the bowels, is a frequent cause ; and disease of the right kidney, or even of the right lung, may give rise to it. The complaint is often closely connected with irritation of the internal surface of the stomach and intestines, and the liver may be but inconsiderably affected.

An irregular or sedentary mode of living will produce it as well as intemperance, especially continued indulgence in spirituous liquors. Great mental agitation will cause it in those disposed to it.

The immediate cause is the absorption of bile into the vascular system, by which means it is mixed with the blood, and circulates with it.

The principal objects of treatment are, to allay irritation in the intestinal canal, and to remove the obstruction existing to the free passage of the bile, through the biliary ducts, and along the intestines. It will be frequently found, that the best means of allaying irritation in these parts will be the most effectual in removing the jaundice. In the young and robust, bleeding from the arm will often be demanded, especially in recent cases; in more debilitated subjects, cupping over the stomach and region of the liver is generally an important remedy.

The patient should also take a warm bath at ninety-six or seven degrees, every other morning about eleven o'clock, with the following pills during the day: Castile soap, a drachm and a half; rhubarb, in powder, eight grains; ipecacuanha, in powder, ten grains; oil of juniper, ten drops; syrup of orange-peel, a sufficient quantity to make the whole into twenty-four pills. Three to be taken twice or thrice a day. Or when there is a good deal of pain in the bowels, the following may be used instead: compound extract of colocynth, and extract of henbane, of each, a drachm; divide into twenty-four pills; one, two, or three to be taken as above directed.

Sometimes rather active purging with calomel, and neutral salts, is very useful, but it must be resorted to with great caution where any positive disease is apparent in the liver, stomach, or other adjacent organ. Gentle purging with the neutral salts is perhaps the most beneficial mode in cases where this practice is advisable; one or two drachms of both the Epsom and Glauber's salt may be dissolved in half a pint of lukewarm water, and taken every morning for a fortnight; and resumed for another fortnight or three weeks after being laid aside for a week. Dr. Baillie states, that he has found the practice of keeping up a gentle action on the bowels, by means of the neutral salts, to be very useful in green jaundice.

The infusion of columbo, or com-

pound infusion of gentian, are sometimes beneficial stomachics, for use during the day.

Where there is a great deal of torpidity about the biliary ducts, which is unaffected by other remedies, electricity promises to be of much service. A few slight shocks may be passed daily in the course of these ducts.

When jaundice originates in positive disease of the stomach, liver, or other abdominal organ, it can only be removed by such remedies as are adapted to the cure of the latter. Should obstinate costiveness, and accumulated excrement, be the cause, a purgative clyster must be frequently administered, with purgatives by the mouth, warm fomentations, and the warm bath.

For the relief of acute pain in the pit of the stomach, and bowels, not produced by inflammation of these parts, the most efficient remedies are hot fomentations, warm emollient clysters of thin starch and oil, and pills of opium and hemlock. Half a grain of opium may be united with five or six grains of extract of hemlock, and given every three or four hours, if the pain be owing to spasm, which it commonly is; but if inflammation be present, bleeding, of course, must be resorted to.

The warm bath, warm fomentations to the abdomen, and gentle aperient medicines, are means applicable to every case of jaundice, from whatever cause it may arise.

The bitter-sweet (*dulcamara*) has been praised for its excellent effects in this disease, and it is, without doubt, a powerful medicine in many cases. If the foregoing means fail in affording satisfactory relief, it may be tried with much propriety in the following manner: infuse a pound and a half of bitter-sweet in a quart of water, over a very slow fire, for seven or eight hours; then, after removing it from the fire, and allowing it to become cold, press the bitter-sweet as dry as possible, and strain it for use. The plant should, if possible, be of the last year's growth, and fresh gathered; and it should be cut into pieces of four or five

inches long, and every piece beat flat before it is infused in the water. The dose is a quarter of a pint every morning, fasting. During the use of this medicine, the urine of the patient should be examined daily, and when it ceases to deposit a sediment, the dose of the infusion should be decreased one-third, and in a few days left off. This is said to have been employed in numerous instances of severe jaundice, with complete success.

Dr. Scott, of England, has recommended the nitro-muriatic acid bath as a valuable remedy for jaundice, as well as for all other severe diseases in which the biliary organs are principally concerned.

Should the disease assume a scorbutic form, the administration of the vegetable and mineral acids, as advised under scurvy, must constitute a part of the general treatment.

In all cases, daily exercise is useful, and should be used freely, but short of inducing much fatigue. Horse exercise is particularly advisable. The diet should be mild, but sufficiently nutritious, being regulated by the rules laid down in dyspepsia.

Occasionally, infants are attacked with jaundice soon after birth, which will generally yield to a dose of castor oil, or any other active purgative. When a purge is not sufficient to remove it, an emetic of ipecacuanha wine will be advisable and effectual.

Many persons who have resided long in a hot climate, contract a sallow, yellowish complexion, which hue often pervades the whole skin; this is generally regarded as a mild sort of jaundice, or as arising from the absorption of the bile, but it is usually of a different nature. In most instances, it is not owing to this cause, but to a peculiar alteration in the circulation, on the external surface of the body, in consequence of the skin's sympathizing with a weakened and irritated condition of the digestive organs, more especially of the stomach and bowels. These organs at all times exert a marked and powerful influence on the

skin; when they are in health, and performing their functions with energy, we find the skin soft and smooth; when they are disordered and weakened, it is uniformly harsh, dry, and unpleasant; and as the exhausting effects of sultry climates greatly enervate the digestive canal, in this we see a sufficient reason for the sallow, rough, and unhealthy condition of the skin, so often witnessed in persons lately returned from a tropical region.

COLIC.

This disease is indicated by a pain more or less intense, principally in the region of the navel; unattended with fever, frequently intermittent, and which is, in most cases, diminished upon moderate pressure being applied to the abdomen. This pain gives to the patient sometimes the sensation of a strong twisting of the intestines, and sometimes of a violent tension as though the bowels were threatened with a rupture; sometimes the pain is referred to one spot; at others, it appears gradually to change its situation, and pass along the whole course of the intestinal tube. To the pain is frequently joined an extreme anxiety; a sense of oppression, and a rumbling of wind in the bowels; occasionally a chilliness of the surface, attended with cold sweats; most generally there is nausea, flatulency, and a costive state of the bowels.

This disease, which is produced by a great variety of exciting causes, consists in an irregular or spasmodic contraction of one portion of the intestines, while frequently the part above this contraction is morbidly distended. Most generally, the exciting cause is an irritation applied immediately to the lining membrane of the tube; it may either be induced by excess in eating; by improper articles of diet; by acrid and poisonous substances, eaten by mistake; by retained feces; by a vitiated condition of the excretions of the bowels; by a morbid accumulation of gaseous matter, produced either by the fermentation of

substances introduced into the stomach, or probably secreted by the intestines when in a state of disease: various concretions formed in the bowels; worms; certain metallic poisons, &c. will also produce it.

Any cause tending to destroy the tone of the stomach or bowels, to increase their irritability and derange their functions, will predispose to an attack of colic.

It has been customary for practical writers to divide the colic into several species, according to the different causes which have given rise to it; and as the treatment differs in some respects, according to its cause, we shall follow this plan, confining ourselves, however, to those varieties of most common occurrence.

We shall treat it, therefore, under the following divisions:

1. Colic from indigestion; or that produced by articles eaten as food, excess in eating, &c.

2. Flatulent colic; or that induced by flatus or gas distending the bowels.

3. Colic from costiveness; or that from retained feces.

4. Painters' colic; or that from the poison of lead.

5. Bilious colic.

1. *Colic from indigestion.* Among the most common symptoms occasioned by an excess in eating, whereby the stomach is loaded beyond what is compatible with the regular and healthy performance of its functions, is a violent colic, accompanied with nausea, headache, and dizziness, preceding the ejection of the contents of the stomach by vomiting; and terminating subsequently in a griping looseness of the bowels. But it is not only by excess of food that this species of colic is produced; it is occasioned also by the *quality* of the aliment: various high-seasoned and made dishes; certain articles of a highly indigestible nature; malt liquors; cider and wines of a bad quality; the stones, kernels, husks and enveloping membrane of various fruits, swallowed when the latter have been eaten, &c., frequently give rise

to it. We find it, however, in many instances originating after meals, from causes more obscure, and accompanied by various additional symptoms of a much more violent and distressing nature, as though the food itself had proved poisonous, or some poisonous substance had been intermixed with it. Occasionally these additional symptoms consist of an intolerable sense of suffocation; a sense of constriction in the throat; the face and eyes become swollen; with excessive thirst; a burning heat over the whole surface; a sense of itching or pricking in the skin, and an eruption, sometimes in the form of minute raised points, at others in that of larger elevations, the cuticle peeling off on the subsidence of the attack; in addition to which we sometimes have a species of delirium, with twitching of the tendons. At other times the accessory symptoms consist of great anxiety; difficulty of breathing; dejection of spirits; spasms of the limbs, as well as of the intestines and abdominal muscles; tenesmus; coldness of the extremities; loss of sight and hearing; convulsions or coma. All the above symptoms occur in some individuals after partaking of certain articles of food; in others, they are variously united.

The first of these two last varieties of colic from indigestion arises in general from a peculiar idiosyncrasy; a peculiar condition of the stomach at the time of eating; or from some peculiar deleterious principle connected with animal food of a particular description.

The articles of animal food which in general give rise to the species of colic under consideration, are various shell-fish; mussels; land-crabs; lobsters; conger eels; the yellow-billed sprat; and a variety of other individuals of the fish kind.

Animal substances, in the process of cooking; or in the different processes to which they are subjected with the view of preserving them for future use, or from their being improperly or too long kept, may undergo a change, ren-

dering them improper articles of food; and when taken into the stomach, cause them to give rise to that peculiar disturbance in the digestive functions, constituting the disease of which we are speaking.

The second variety mentioned of the colic from indigestion, is produced generally by eating deleterious vegetable substances, either mixed with our food, or eaten in mistake for esculent articles. It may likewise be produced, as in the former species, by a peculiar idiosyncrasy in the individual; or a certain state of the digestive organs at the time, causing those vegetable substances, which are eaten by other persons without any inconvenience, to produce the symptoms previously enumerated.

The treatment in all the varieties of this species of colic, is to be commenced with an emetic, in order to unload the stomach of the offending matter. Where the disease has been induced merely by a surfeit, or by too rich food, ipecacuanha will be most proper; in some cases, even warm water will be sufficient; but in the two other varieties, a more prompt and powerful emetic is demanded, and it has here been recommended to prescribe immediately a full dose of the sulphate of zinc. The emetic is to be followed by a brisk cathartic, which may be aided in its operation by purgative injections. In the second variety, the vital powers of the system are in general rapidly, and to a most alarming extent, exhausted; it hence becomes necessary, as soon as possible after the evacuation of the stomach, to rouse the system, by the administration of the most diffusible stimulants and cordials, such as sulphuric ether; ginger tea or capsicum; and vinegar diluted with water and sweetened, should be drunk in abundance. According to Orfila, it would appear that strong doses of ether is the cordial best adapted to these cases. These remedies may be aided by stimulant applications to the extremities, and all the other means of rousing the vital pow-

ers from their state of exhaustion. In the second variety, the treatment differs but little from that already laid down. The great indication is to get rid of the offensive matter as quickly as possible, by active emetics and purgatives, afterwards to rouse the system by external stimulants; and to subdue the irritation and general convulsions by opiates. A mixture of vitriolic ether and laudanum is an excellent internal remedy; and in many cases, much advantage will be derived from the plentiful use of diluted vinegar, sweetened with sugar. Of course, the above plan of treatment must be varied according to the symptoms and degree of violence exhibited in each case. In some, the simple removal of the contents of the stomach and bowels will be sufficient.

2. Flatulent Colic. In addition to the general symptoms of colic, in this species we meet with a considerable and unequal distension of the abdomen, occurring suddenly. There is a rumbling of wind in the intestines, and a frequent expulsion of it both by the mouth and by the anus. These discharges of flatus in general occasion some relief to the patient, and the pain is also diminished by pressure upon the abdomen, bending the body forward, &c. Flatulent colic is produced by every thing which occasions derangement in the functions of the stomach and intestines, and hence it is frequently complicated with dyspepsia, and a variety of other disorders, attended with, or succeeded by, a loss of tone in those organs. In many cases of the disease, the affection appears to be induced by a morbid production of air by the bowels themselves, but in general it is dependent upon the use of fermentable substances as articles of diet, particularly from the vegetable kingdom. The fruits of the season, cabbage, beans and peas, new cider, perry, small wines, beer and porter, honey, onions, &c. &c. being introduced into the stomach when that organ is in a state of debility, frequently undergo a rapid fermentation, and give rise to an

enormous development of gas, producing the symptoms peculiar to this species of colic. There is also in some individuals an idiosyncrasy in reference to certain of the articles enumerated, in consequence of which they resist the action of the digestive organs during even their ordinary state of health, and produce more or less disturbance every time they are eaten.

In the flatulent form of colic, our indications are to relieve the spasm, expel the gaseous matter distending the intestines, and afterwards, by a proper regulation of diet and regimen, and the judicious administration of tonic remedies, to restore the healthy functions of the stomach and bowels. Immediately upon an attack of flatulent colic, if we are convinced that no degree of inflammation exists in any portion of the alimentary canal, we should administer opiates in combination with some aromatic or diffusible stimulant, and at the same time apply rubefacients or stimulating fomentations externally to the abdomen. The best internal remedy is probably a combination of the vitriolic ether or Hoffman's anodyne and laudanum, in proportions suited to the age of the patient and the violence of the case, exhibited in a draught of anniseed or mint water, or the compound tincture of lavender; at the same time we may administer injections, composed of some aromatic, combined with laudanum; the one most to be depended on, is composed of a couple of drachms of turpentine and a sufficient quantity of laudanum rubbed up with a proper portion of some thin mucilage; assa-fœtida combined with laudanum, has also been recommended, both by the mouth and in the form of injection. In many cases, the volatile alkali will give prompt relief. After the pain has somewhat subsided, it will be proper to administer an active but mild cathartic; the best is probably magnesia, combined with calomel, to which should be added a drop or two of some essential aromatic oil.

After the disease is removed, the

treatment necessary to restore the tone of the stomach will be the same as that laid down in the article on dyspepsia.

In many cases, however, of flatulent colic, it will be found by a cautious attention to all the symptoms which are present, that some portion of the lining membrane of the alimentary canal is in a state of irritation closely bordering upon inflammation, or even actually inflamed. Whenever this is the case, the treatment just detailed would be improper: in place of giving to the patient any thing of a stimulating nature, we should place him upon a very light diet, composed chiefly of mucilaginous fluids, taken in very moderate quantities, and, at the same time, we should reduce the inflammation which exists, by leeches to the abdomen, by the warm bath, by a state of perfect rest, and by the occasional use of emollient clysters.

3. Colic from costiveness. In that variety of colic depending upon a constipated state of the bowels, the indications are to procure a discharge of the retained and impacted feces, and to allay the spasm affecting the intestines; which indications are to be effected by the use of purgatives and injections, the warm bath, warm fomentations, and, where the spasms are violent and obstinate, the patient young and robust, by bleeding. We are to recollect, in every obstinate case of colic, that we do not possess a more prompt and powerful means of subduing spasmodic action and pain, than the lancet, employed with judgment. It may also be observed, that it is not uncommon for a violent attack of colic to terminate in inflammation of the intestines, which may in every instance be prevented by a prudent abstraction of blood. The warm bath affords us also, in many cases, a powerful auxiliary to our other remedies, when properly managed.

Colic is a very common complaint in infants and young children; it arises in them in general from the following causes: from the retention of the meconium; wind confined in the intes-

tines; some defect in the milk of the nurse; improprieties of diet; worms; costiveness, &c. In them, colic is to be treated on precisely the same general principles as have been already laid down in reference to the disease when it occurs in adults; the remedies being adapted, however, in their kind and their doses, to the difference in their age and other circumstances.

4. *Painter's Colic.* This is the name generally given to that variety of the disease produced by lead introduced under certain circumstances into the system, and there acting as a poison.

The attack of this disease is usually preceded for some time by a costive state of the bowels, foul tongue, bitter taste in the mouth, sense of weight in the abdomen, and flatulence. The pain is at first dull and remittent, but progressively grows more violent and continued. The pain is generally, during the whole course of the disease, seated at the pit of the stomach; as, however, it increases in violence, it extends from thence to the arm, navel, back, loins, rectum and bladder. From the navel it sometimes shoots with so much violence to each side, that the patient declares he feels as though he were about being cut in two. Nearly all the external muscles are rendered sore to the touch, by the violence of the pain, as though they had been affected with rheumatism; sometimes this soreness is so great as to render the patient incapable of bearing the weight of the bed-clothes, or the slightest touch. Occasionally, the violence of the pain alternates between the stomach and the external muscles; the pain being greatest in the stomach, while the external muscles are comparatively at ease, or being diminished in violence in the stomach and bowels, it attacks the external muscles with increased severity. Nausea and vomiting are early symptoms, and as the pain in the stomach augments, the sickness likewise increases. Even on the second day from the attack, the retchings are violent, and the matter

discharged consists mostly of acrid slime and vitiated bile; ordinarily this discharge produces a momentary relief to the patient, but, as long as the pain continues, the same morbid matter is secreted and poured into the stomach, and the retchings return with increased violence, or their place is supplied with bitter eructations and hiccup. The abdomen is of a uniform tenseness, and it is ordinarily retracted; a tenesmus, more or less painful and urgent, attends the disease, producing frequently a discharge of bloody mucus. The costiveness is generally very obstinate, and when feces are brought away, they are small in quantity, and composed of hard rounded lumps, like the excrement of sheep or goats. When the stools are more frequent and greater in quantity, the patient experiences from the discharge very considerable relief. The pulse, notwithstanding the severity of the sufferings, is but little affected in the commencement, or until after some days; on the fourth or fifth, however it becomes quicker, and, according to Pariset, of an extraordinary hardness, which does not give way to bleeding or other remedies; nor is it diminished in those limbs which have become paralyzed by the disease. Towards the close of the malady, there is generally a pain around the edges of the feet and the extremities of the toes, which are often red and swollen, and apparently gouty. In a mild degree, and under the most appropriate plan of treatment, the disease will seldom be removed under several days; but if violent, neglected, or improperly managed, it will continue for weeks, or even months, with short intervals of ease, and terminate finally in a peculiar species of palsy, especially of the extremities, or in death, preceded by deafness, blindness, delirium, or epileptic fits.

Excepting where the malady has been of considerable obstinacy, and has continued for some length of time, the paralysis is scarcely ever complete; the power of the muscles being only

weakened, their sense of feeling remains, and they are occasionally affected with pains. When the paralysis persists for any length of time, the muscles of the limbs affected waste away, and never regain their former bulk. Almost always this paralysis is confined to the superior limbs; it may be confined, it is said, to one arm, to a single hand, or even to one of the fingers.

The train of symptoms we have now described, is produced by lead in some form introduced into the system. Thus the disease is most frequent among the labourers employed in lead mines and smelting furnaces; it attacks, particularly, painters who make use of colours formed from preparations of that metal; those who prepare these colours; those employed in the manufacture of the different salts or oxydes of lead; plumbers; potters; glaziers; polishers of glass; type-founders, printers, &c. It has been said, also, to be produced by sleeping in rooms newly painted with white lead; by eating pickles, apple-butter, and other acid substances, preserved in earthen vessels glazed with vitrified oxyde of lead, and by drinking wines and cider, the sourness of which has been destroyed by the use of some preparation of this metal.

In regard to the treatment of the painter's colic, when the patient is young, of a robust habit, and the symptoms of the case violent and obstinate, the use of the lancet is indicated, and the practitioner should take away a quantity of blood proportionate to the exigency of the case and the effects which are produced by it during the operation, which is in fact the only rule by which we can ever judge as to the extent to which bleeding should be carried in this disease. Immediately after the first bleeding, the warm bath is an admirable remedy, and should never be neglected.

The internal agent upon which most dependence is to be placed in painter's colic, is a combination of opium and calomel. This prescription, when given

in sufficient doses, will seldom fail in relieving the violence of the pain, and in producing a free and copious evacuation from the bowels. In violent cases, two grains of opium and from fifteen to twenty of calomel should be given twice or thrice in the course of the day. At the same time, the action of the calomel upon the bowels should be solicited by repeated doses of castor oil and frequent emollient injections. In chronic cases of the disease, attended with palsy of the arms or hands, and shooting pains through the abdomen and limbs, administering the calomel in such a manner as to produce a slight soreness of the mouth, will often cause the removal of these symptoms.

After copious depletion and the use of the warm bath, blisters will occasionally be found a useful remedy. Applied to the stomach, they will relieve the distressing nausea with which the disease is often attended.

Other remedies have been recommended by different writers, but the foregoing are confessedly those from which the greatest amount of good will be obtained. By some of the German physicians, alum is extolled as almost a specific in this species of colic, and Dr. Percival of England, who gave it in the dose of fifteen grains every four or six hours, declares that the third dose seldom failed to mitigate the pain, frequently entirely to remove it. A combination of alum and sulphate of zinc is also highly spoken of by Moseley. The nitrate of silver is another remedy recommended in the treatment of painter's colic, particularly in its advanced stages, when palsy of the arms or hands is present.

After the disease is subdued, the bowels are to be kept in a regular state by mild laxatives; the diet of the patient is to be unirritating and moderate in quantity; regular exercise should be taken daily in the open air, and sudden changes of temperature carefully guarded against. The occasional use of the warm bath and frictions of the surface, morning and evening, will

aid greatly in restoring tone to the bowels.

5. *Bilious Colic.* This is a disease of frequent occurrence during our summer and autumnal months, particularly in the southern and middle states. It is a febrile affection, appearing at the same time, and under similar circumstances as bilious fever, dysentery, cholera morbus, &c. It is preceded by a chilliness and all the other symptoms peculiar to the commencement of fever. The disease is marked by a violent and intolerable pain of the bowels, which in some cases seem to be, as it were, tied together, and in others closely pursed up, and with a sensation as though they were bored through with a sharp pointed instrument; the pain occasionally abates, but quickly returns. In the beginning, the pain is not fixed to one particular spot, as it is in the progress of the disorder, while vomiting also is less frequent, and the bowels more easily yield to the action of purgatives; but, as the pain increases, it becomes obstinately fixed to one place. Frequent vomiting succeeds; the bowels become more and more costive, until at length the symptoms rapidly increasing in violence, unless the patient be speedily relieved by the interference of the physician, a total inversion of the peristaltic action of the bowels occasionally takes place. Every thing administered by the mouth, or injected into the rectum, is then thrown up violently by vomiting; the matters discharged from the stomach are various in appearance; sometimes of a green, yellow or dark colour; even feces have been known to be ejected by the mouth, in the advanced stage of violent cases.

In this disease there is violent irritation of the bowels, in consequence of which they are thrown into a state of spasmodic contraction, by the vitiated secretions poured into them from the liver and surrounding glands. The disease terminates, if left to itself, either in ileus, or the violence of the irritation induces inflammation, sphacelus, and death.

Notwithstanding the formidable nature of bilious colic, if the practitioner be called in sufficiently early, and attack it boldly and perseveringly by appropriate remedies, he will seldom fail in relieving it, and restoring his patient to a state of health. To attain this desirable end, however, his remedies must be of the most active kind, and administered in doses commensurate with the violence and rapidity of the symptoms.

In every case where the symptoms are of any considerable violence, particularly if the patient be young and of a robust habit, and the pulse tense and accelerated, it will be proper to commence the treatment of bilious colic by drawing off blood from the arm. No direction can be given in relation to the proper quantity of blood necessary to be taken away; this must be left to the judgment of the practitioner, who will adapt the extent of the bleeding to the violence of the symptoms and the effects produced upon them during the flow of the blood.

Immediately after the bleeding, a dose of calomel and opium in combination, should be administered by the mouth, and the patient may at the same time be immersed in a warm bath; or if this be not practicable, warm fomentations should be applied over the whole of his abdomen, and continued for some length of time. When by the first bleeding the violence of the pain is not considerably abated, leeches or cups should be applied over the abdomen, and repeated, if necessary.

The dose of calomel and opium is to be graduated according to the violence of the case, always recollecting that large doses will in general be required, and that to carry the first dose to a sufficient extent, is preferable to repeated exhibitions of the medicine. The quantity given should be seldom less than ten grains of the calomel to one or two of the opium. In many cases, however, the violence of the disease will require these quantities to be doubled. If, after a reasonable inter-

val, a manifest mitigation in the symptoms be not produced, the calomel and opium should be repeated. This prescription will relax the spasm of the bowels, determine to the cutaneous exhalants, and at the same time excite the healthy action of the liver, and unload the bowels of the diseased secretions by which the irritation is kept up. The action of the calomel may be augmented by injections of a laxative nature thrown into the rectum, and frequently repeated; or, where the stomach will receive and retain it, we may follow the calomel by a solution of sulphate of magnesia, or castor oil, in repeated doses.

If the stomach be very irritable, and frequent vomiting be present, these symptoms will in general be relieved by the calomel and opium; we may at the same time, however, exhibit the effervescing mixture, and a large blister should be applied over the stomach. In every case where the symptoms are violent and obstinate, the application of a blister, after the employment of warm fomentations has been continued for some length of time, will be of advantage, and should not be neglected. After the violence of the disease has been removed, we should next direct our attention to restore to the liver and alimentary canal their healthy action. This is to be done by a continuance of the calomel, particularly in divided doses, combined with opium and ipecacuanha; by the occasional use of the warm bath, and by a proper regulation of diet and regimen.

The calomel in the above manner should be continued until the discharges from the bowels are perfectly natural, every appearance of febrile symptoms removed, and the skin has resumed its natural moisture and softness.

The diet of the patient should be light, nourishing, easy of digestion, and taken in small quantities at a time. He should particularly avoid all fat, coarse and irritating articles of food, all flatulent and crude vegetables, and all stimulating liquors; he should

make use daily of moderate exercise, but above all, riding on horseback.

As bilious colic is a disease which is easily reproduced by any impropriety of diet or regimen, or by exposure to cold or damp, all these exciting causes of the disease should be carefully guarded against by the patient for some considerable time. He should be particularly guarded against overheating himself, either by exposure to the sun or by over-exertion, and particularly when such has been the case, should he be cautious not to expose himself to cold, either by throwing off any portion of his usual clothing, sitting in a draught of air, going out into the night air, or drinking cold fluids. His bowels should be kept moderately open either by the use of the ripe fruits of the season or some gentle laxative, and in every case, where it can be accomplished, the patient should be recommended to remove, at least for a season, to a healthy country situation.

DIARRHŒA.

Though a disease of frequent occurrence, and very generally recognized without much difficulty by the medical practitioner, a proper definition of diarrhœa is by no means easily given. Cullen defines it to be a disease consisting in evacuations by stool, more frequent and of a more liquid matter than usual. But it is very evident, that this definition is applicable not only to diarrhœa, but to every disease of the bowels attended with more frequent or less consistent discharges than take place during a state of health. It has likewise been defined an increased fecal discharge, without fever, griping or tenesmus. But as all of these symptoms do occasionally occur in diarrhœa, and the latter especially, often to a considerable extent, this definition is, of course, equally defective. The stools in diarrhœa, however, being more or less feculent, being generally passed more frequently than in health, the disease being most commonly unattended with any considerable degree of fever, and when griping

and tenesmus are present, their less degree of intensity will commonly enable us to distinguish diarrhœa from dysentery, the only disease with which it is liable to be confounded. The discharges from the bowels in diarrhœa are very various in appearance and frequency, being sometimes merely natural feces of a watery consistency; at others, a frothy fluid, apparently in a state of fermentation, and of a sour smell; again, they may be thin, and either of a bright yellow, of a dark or bright green, or more or less of a brown colour; frequently they are mixed with a considerable portion of mucus, and occasionally are slightly streaked with blood. They may take place but four or five times in the course of the day, or may be almost constant, an evacuation occurring every few minutes. When the discharges are considerable or very frequent, they soon reduce the strength of the system; the patient becomes emaciated; digestion is impaired or destroyed; the face and skin become pale, and finally of a dirty yellow colour; the surface becomes dry and rigid, and the extremities swollen from the effusion of a serous fluid into the cellular structure. The discharges from the bowels, in protracted cases, generally consist of a dark watery fluid, of a very offensive odour; a slow fever ensues, and the patient finally expires in a state of extreme exhaustion.

The cause of diarrhœa is an increased peristaltic action throughout the whole or a greater part of the intestinal canal. This increased action may be induced either by an irritation immediately applied to the mucous coat of the intestines, or by the irritability of this part being increased from an undue determination of blood to it, in consequence of irritating substances taken into the stomach; indigestible or too much food, or the action of cold upon the external surface of the body.

According to the exciting causes of diarrhœa and the appearance of the discharges, it has been divided into

three distinct varieties. The first, in which the discharges are the ordinary feces, but morbidly thin and copious, is produced by eating an immoderate quantity of food, or such as is improper in quality, and which either passes into the intestines imperfectly digested, or undergoes fermentation, and thus becomes a source of irritation.

This variety of diarrhœa is in general attended with some degree of nausea, eructations, flatulency, and some degree of griping in the bowels; the discharges, as we have said, are generally natural feces, immoderate in quantity and morbidly fluid; they are occasionally mixed with undigested portions of food; are sometimes frothy, and frequently of a sour smell. This variety of diarrhœa, in general, after continuing for a short period, if its exciting cause be not repeated, works its own cure, by removing out of the body the irritating substances by which it has been produced; but, as there is generally some degree of irritation produced in the mucous membrane of the stomach and intestines, which is very apt to be increased and rendered more permanent by the continuance of the disease sufficiently long for nature to effect a cure, it is much better in every instance to cut it short by the administration of appropriate remedies, and a strict attention to diet and regimen.

An emetic should be first exhibited, with the view of unloading the stomach of its morbid contents. A dose of ipecacuanha is in general to be preferred. The emetic should be followed by some mild aperient, such as magnesia and rhubarb, or calomel and rhubarb. The bowels being by these means well cleansed, the cretacious mixture, or lime water and milk, and an opiate at bed-time will, in almost every case, effect a cure. The same rules in regard to diet will be proper here as in dyspepsia. During the continuance of the diarrhœa, some advantage will be derived from the use of rice water; and if the bowels continue in a weakened condition subsequent to the treatment already laid down, an excellen

prescription will be found in the cretacious mixture, with the addition of a proper proportion of the tincture of kino.

The second species of diarrhœa, is that in which the feces are thin, copious, and of a bright yellow, green or brownish hue. It is produced by an increased secretion of bile, more or less vitiated. The common cause of this species of diarrhœa, is a high degree of atmospherical temperature; and hence, it is a common complaint in the commencement of our summer months; and among Europeans, upon their first arrival in tropical climates. The intimate sympathy existing between the skin and hepatic system is such, that the surface of the body can not, for any length of time, be subjected to the stimulus of a high degree of atmospheric heat, without the liver being likewise thrown into increased action; and in consequence, pouring into the intestines an increased amount of bile, differing more or less from its natural condition, according to the degree and continuance of the cause, and other circumstances. There can be no doubt, that in its healthy condition, and ordinary quality, bile is a necessary stimulus to the intestines, exciting the latter to the due performance of their functions; but when secreted in excess, or changed in quality, it becomes a morbid stimulus, and an inordinate action of the intestines is the consequence, producing the disease under consideration.

If this species of diarrhœa be simple and moderate in extent, and not of long continuance, nor connected with extensive irritation of the liver and alimentary canal, it is a disease of but little moment or danger; but under a contrary state of things, it is apt to degenerate into cholera, bilious colic, fever, or dysentery.

Besides the peculiar appearance of the feces already remarked, bilious diarrhœa is attended with some degree of nausea, griping, and tenesmus; often with considerable heat of the skin.

Its cure is to be effected by a purga-

tive of calomel, followed by a combination of rhubarb and magnesia, or castor oil; with the view of carrying off, by its operation, the increased quantity of bile from the intestines. Advantage will be derived from the plentiful use, at the same time, of mild diluents, such as toast water, rice water, flaxseed tea, &c.

Mild fluids, gently acidulated with the vegetable acids, as well as sub-acid fruits, have been highly recommended in this species of diarrhœa. When the disease is very considerable, and the appearance of the discharges much changed from their natural condition, the best treatment will be; in the young and robust, and when the disease is attended with much heat of the skin, and an active, tense pulse, the abstraction of blood from the arm; or, in cases occurring in subjects of less vigour, and when the symptoms of local irritation and febrile excitement are less prominent, the application of cups or leeches to the abdomen, followed by the administration of small doses of a combination of calomel, opium and ipecacuanha; as, calomel five grains, opium three grains, ipecacuanha eight grains; to be divided into eight powders, and one given every three hours. After the biliary secretion has, by these means, been corrected, an opiate and light astringents will be proper. During the disease, the diet of the patient must be light and unirritating, and his clothing adapted to the temperature of the season; above all, must he avoid exposure to the heat of the sun, over-exertion, fatigue, &c.

In the third variety of diarrhœa, the discharges are nearly watery; and composed, in a great measure, of a fluid secreted from the mucous follicles and vessels of the intestines; which latter are, in general, in a state of very considerable irritation, amounting, in some cases, to a low state of inflammation.

This form of diarrhœa, in general, takes place when a degree of cold and moisture of the atmosphere suddenly succeeds to heat; or when the body, in

a state of increased perspiration, is exposed to damp or cold, either partially or generally. It has likewise been observed to affect the crews of vessels, who in a short space of time pass from a dry and warm to a cold and moist climate; thus we are informed by Mr. Macartney Ross, that in the outward bound passage of the vessels engaged in the whale fishery, it is a frequent occurrence for the seamen to be affected, soon after their arrival in the northern seas, with the variety of diarrhœa we are now considering. These vessels generally leave England during the month of March, when the weather is comparatively temperate, and in a week or two afterwards arrive within the arctic circle. After they have remained, however, for some time exposed to the latter climate, the cases of diarrhœa, which are numerous on their first arrival, daily decrease; and the few new cases which occasionally occur, are invariably produced, according to this writer, by those affected being, in the course of duty, suddenly called from their beds, and exposed to an intensely freezing atmosphere.

In mucous diarrhœa, the discharges, as we have observed, are most generally composed of a thin mucous fluid, occasionally slightly streaked with blood; there is often considerable griping, and not unfrequently slight febrile symptoms, a dry skin, furred tongue, and some degree of thirst.

The cure is to be commenced by an emetic, which not merely empties the stomach from any substance it may accidentally contain, the passage of which into the intestines might become a cause of irritation, but by its action upon the skin, it tends to restore the healthy functions of the latter, and determines the circulation from the bowels to the external parts of the body, and thus diminishes the increased excitement of the vessels of the former. Subsequent to the emetic, immersion in the warm bath, or bathing the feet in warm water, followed by frictions to the surface, is a remedy in the highest degree beneficial. A dose of castor

oil should in general be early administered, and after its operation, small doses of ipecacuanha, opium and calomel, in the following prescription, should be directed every two or three hours: namely; ipecacuanha, ten grains; opium, three grains; calomel, three grains, divided into ten powders, one of which is a dose. The good effects of this prescription will be increased by the patient remaining in bed, taking plentifully of some tepid mucilaginous, or mild diluent drink; and by the occasional use of the warm foot-bath; or, where it can be appropriately administered, the warm bath. In evidence of the good effects in this disease, of the ipecacuanha, either alone or combined with opium, we have the testimony of many of the most respectable physicians.

In ordinary cases of mucous diarrhœa, these measures very generally succeed, in a short period, in putting an end to the disease. In other instances, however, the disease continues sometimes for a length of time, attended with frequent watery discharges, considerable griping, exhaustion of the patient's strength and general emaciation. In these cases, the judicious application of leeches or cups over the abdomen, in conjunction with opiates by the mouth, or by injections into the rectum, and the warm bath, and followed by a blister to the abdomen, will frequently remove the complaint. But when these measures fail, we must resort to astringents: one of the most effectual is a grain of the acetate of lead, combined with a quarter or half a grain of opium, every three hours; followed, after a few doses have been taken, by castor oil, or by magnesia and rhubarb. Another article, which in many cases has been found highly beneficial, is a strong decoction made from the saw-dust of mahogany, or from logwood, or dewberry root; the kino, and other astringents, may also be resorted to, as occasion may require.

In the stage of the disease of which we are now speaking, the diarrhœa appears to be kept up by a chronic irri-

tation of the mucous membrane of the bowels. In this form of the disease, flannel next the skin, and a mild abstemious diet of rice and milk, thickened milk, and the like, are essential to the cure.

Besides the causes already enumerated, diarrhœa may be produced by fear, grief, anxiety, and other depressing affections of the mind; and upon the removal of these causes, it will generally cease; if not, the administration of an opiate, and some slight astringent, will be proper.

Diarrhœa frequently, also, results from the sudden repulsion of various cutaneous eruptions. In these cases, such a treatment as will reproduce the original affection of the skin is demanded; the remedies generally successful, are an emetic; the warm bath; blisters, or mustard poultices, to the seat of the external disease, &c.

We have, heretofore, considered diarrhœa in its simplest forms, and submitted at an early period to proper curative measures; it unfortunately happens, however, that from the repeated application of its causes; from a debilitated or broken-down condition of the constitution; or, very frequently, from mismanagement in its first stages, diarrhœa assumes a chronic form, constituting then a disease obstinate, frequently fatal, and always difficult to treat. The discharges become extremely fluid and frequent, dark-coloured, and of a more or less fetid odour; the appetite of the patient is destroyed; his strength greatly diminished, and his body extremely emaciated; the skin is rough, dry, and of a dirty yellow hue; the tongue is dry, frequently parched, and always of a brown or dark mahogany colour; so irritable is the whole tract of the intestines, that whatever drink or food the patient takes, immediately throws them into action, and not unfrequently passes through them in the same state in which it was taken into the stomach. In some cases, this variety of diarrhœa is attended with much straining, or tenesmus.

Dissections have discovered, after

death from chronic diarrhœa, various diseased conditions of the mucous coat of the intestines, thickening, ulceration, &c.

The treatment proper in chronic diarrhœa, is by no means easily laid down. That which has most generally succeeded, has been,

1. The administration of small doses of calomel, at regular intervals, combined with opium and ipecacuanha, in equally minute portions. This prescription, while it tends to keep up a beneficial action on the surface, would appear, also, to diminish the morbid irritability of the intestines, and at the same time, correct the vitiated condition of the secretions poured into their cavity.

2. The frequent use of the warm bath; warm fomentations to the abdomen, and a flannel roller applied moderately tight over the latter; all of which would appear to act in removing the diseased state of the bowels, by their tendency to keep up a constant healthy action upon the surface.

3. The application of blisters to the abdomen.

4. A proper regulation of diet; which should consist of articles light, easily digested, and of a soft consistency; such as various preparations of the farinacea with milk, such as rice, flour and milk, thickened milk, &c.

The patient should be kept in bed; and an occasional opiate, either by the mouth, or by injection, will be frequently serviceable in allaying the griping, &c.

In regard to astringents, their use requires much judgment; and the greatest caution is demanded, not to check, by their administration, too quickly, the discharges; as dropsy, or even more fatal consequences, have been known to result. Any of the articles of this class may be employed, when their administration has been thought expedient. Much advantage will be derived from the acetate of lead, opium and ipecacuanha combined, with the occasional interposition of

a dose of castor oil. By the surgeons of the United States' army, on the frontiers, during the last war, an injection of the infusion of galls, with laudanum, was found to succeed very well.

Diarrhœa of Infants. The number of evacuations daily passed by infants without prejudice to their health, is more than those passed by adults; and when they amount to four or five, it is not to be regarded as prejudicial, unless the health be impaired, or some symptom appear of the child not thriving. When looseness happens in infants, the appearance of the stools is very various. 1. They are light green, and have a sour smell. Such stools are accompanied with fretfulness and griping, but are readily cured by a purge of rhubarb and magnesia, or of magnesia, four grains; rhubarb, three grains, and ipecacuanha, a quarter of a grain. The diet of the child should be rice-water, arrow-root, or milk boiled and thickened with rice-flour, and the diet and the bowels of the nurse should also be regulated. Immersing the child daily in a warm bath is often beneficial. 2. Sometimes the stools are *slimy*, either from exposure of the child to cold, or irritation of the bowels, and they are also streaked with blood. If there be great pain or fever, we have reason to fear that one part of the gut has been taken within another. The warm bath, leeches and fomentations to the belly, and a dose of castor oil, are the proper remedies. The diet should be the same as above. 3. The stools may be very liquid and of a dark colour, occasioning what are called *watery gripes*. This form of looseness very speedily brings down the infant's strength, and must be carefully attended to. It is an attendant on teething, and arises also from bad milk, improper food, impure air, exposure to cold, or some mismanagement of the child. The treatment differs in nothing from that directed in the last variety. Very minute doses of calomel, as one-sixth of a grain,

combined with a grain or two of magnesia and prepared chalk, and a quarter of a grain of ipecacuanha, repeated every three hours, will often produce very speedy relief; and the irritation of the bowels is to be allayed by giving a clyster of starch with a little laudanum, for three or four successive nights. The state of the teeth is to be attended to, and warm clothing should be worn by the child. 4. Sometimes large quantities of *clay-coloured* stools are passed, not liquid, but rather consistent; by these the strength is greatly reduced in a very short time. In many cases, leeches over the liver or to the abdomen, with the internal use of rhubarb and magnesia, combined with a grain or two of calomel, followed by purgatives of senna, opiate frictions, and attention to the diet, are the most successful means of cure; but the disease in question is frequently fatal under the most judicious treatment. 5. The stools are sometimes of a *dark green colour*, and resemble chopped spinage. Such stools are passed in the course of croup and other acute diseases; they are also occasioned by frequent doses of calomel. The treatment is the same as in the third variety. 6. At times, the stools consist principally of the *food in an unchanged state*. This must obviously be a very weakening and dangerous affection. If it occurs after other diseases, it indicates that the powers of life are nearly exhausted; but if it arises from teething, or other temporary irritation, it will cease upon the removal of the cause producing it. Rhubarb in small doses, alterative powders of calomel and rhubarb, and a proper change of the diet, are to be had recourse to. The various kinds of diarrhœa may pass into one another, and the particular causes of the complaint may be difficult to distinguish. Whatever be the original form of the disease, when it has continued any length of time, certain symptoms are induced which indicate great danger. Either very great emaciation is

produced, or the brain becomes affected; and the child dies from dropsy in the head.

DYSENTERY.

Dysentery is an inflammatory affection of the lining membrane of the larger bowels, in which the stools are frequent, and often bloody, attended with griping and tenesmus; the ordinary excrement being seldom discharged, and when it is, the quantity is small, and voided in the form of hard lumps. Fever very generally attends the acute form of the disease.

Dysentery sometimes comes on with shivering, succeeded by heat and thirst, and other symptoms of fever; at others, the affection of the intestines is the first symptom observed. There exist unusual flatulence in the bowels; severe griping; frequent inclination to go to stool; tenesmus; loss of appetite; nausea; vomiting; frequency of pulse; and a frequent discharge of a small quantity of mucus streaked with blood, pure blood, or of a peculiarly fetid matter by stool. The matter discharged from the bowels in dysentery, varies very much in appearance, in different cases; being sometimes, as we have just stated, pure mucus, or mucus mixed with blood; pure unmixed blood, and in other instances, pus, a jelly-like dark coloured matter, or a putrid sanies; which contain films of a membranous appearance, or small fatty masses, floating in a large quantity of liquid matter. Hardened excrement is likewise sometimes passed. There follow great emaciation and debility, a quick and weak pulse, a sense of burning heat, and intolerable bearing down of the bowels.

Dysentery may appear under an *acute*, or a *chronic* form. In the *acute* form, the symptoms are urgent and clearly inflammatory, the natural feces very rarely appearing, the pain and tormina great, and blood often passing in large quantities. It terminates, for the most part, within a month.

The *chronic* species is generally a consequence of the acute, and is, as its

name imports, of a less inflammatory and more protracted character than the latter: here the stools are often frequent, loose, and have much the appearance of the natural excrement, but mixed with blood and mucus, and passed with severe tenesmus or bearing down at the anus.

Persons who have never before been attacked with dysentery, or only after a long interval of health, more especially if of a strong, or temperate habit, are most likely to have it in the acute form, at the commencement at least: while they who have repeatedly suffered from it, or whose constitutions have been broken down by excessive fatigue, intemperance, or other causes, will often be attacked by the chronic form, even from the beginning.

The dissection of those who die of dysentery, invariably discloses an inflamed, engorged, or ulcerated state of the internal membrane of the lower intestines, and especially of the colon, thus proving that the essence of the disease consists in an inflammation of those parts. The liver is sometimes found diseased, but this is probably only a secondary affection, being met with chiefly, or exclusively, in those who have had a previous attack of liver complaint.

The principal causes of dysentery are, suppressed perspiration; a damp atmosphere succeeding to a high temperature; and exposure to noxious exhalations and vapours. The disease is endemic at particular seasons of the year in many situations, and it occasionally prevails as an epidemic, spreading over a wide extent of country. It prevails often to a very great extent in camps, or among troops on a march through unhealthy districts, and has often, by the mortality it produces, been more fatal to an army than the field of battle.

Dysentery occurs most commonly in summer and autumn, and in weak, ill-fed, or intemperate persons.

The indications of treatment in *acute* dysentery, are to subdue the local inflammation, to allay irritation, and to

restore a healthy secretion from the skin; and these objects are most certainly secured by blood-letting, calomel, and anodynes, especially opium, with ipecacuanha. Almost the whole of these remedies are called for, in proper suecession, and according to the symptoms that present themselves, in all very severe cases, especially in hot climates.

If the pain and tenderness of the belly are considerable, and the pulse full and hard, sixteen or twenty ounces of blood should be drawn from the arm directly, and it ought to be quickly repeated if the symptoms, denoting inflammation, continue but little abated by the first bleeding. The extent to which blood-letting may be carried in this disease, must depend in a great measure on the strength and age of the patient, the intensity of the pain, the hardness of the pulse, and the quantity of blood passed. Whenever these circumstances are combined, it ought to be freely employed, until the symptoms are mitigated. In the majority of cases, the application of leeches to the lower part of the belly will be very useful, whether general blood-letting be resorted to or not. In many instances, a large blister may be laid over the abdomen with much advantage, after the symptoms of the disease have been reduced by bleeding.

If severe bilious symptoms are present, a dose of colomel and rhubarb, ten grains of each, may be advantageously employed after bleeding, and followed in the course of a few hours by a dose of castor oil.

A combination of calomel or blue mass and ipecacuanha, will often be found of inestimable service in this complaint. A grain of calomel, or three of the blue mass, a grain of ipecacuanha powder, with a third or fourth of a grain of powdered opium, may be made into a pill, and given three times a day; or, a grain of calomel and four grains of Dover's powder, made into a pill in the same manner, may be administered thrice daily; the other measures above prescribed

being previously employed. These combinations of calomel with an anodyne are sometimes of the greatest advantage.

In the commencement of acute attacks of dysentery, more especially if the inflammatory symptoms run very high, opium, however, should not be given, either in a liquid or solid state. In such a condition, our chief means must be directed to lessen the existing inflammation as, blood-letting, leeches, the warm bath, and emollient clysters. As an anodyne in this complaint, there appears none so suitable and efficacious for general use, as Dover's powder, that is, the compound ipecacuanha powder. If, therefore, it is not exhibited through the day, as one of the principal remedies, a dose of eight or ten grains may be given in the form of pills, every night.

In regard to diet, it should be mucilaginous and fluid, and consist chiefly of barley, rice or gum water during the inflammatory stage of the disease; and this only in very small quantities. Subsequently, preparations of sago, rice, arrow-root, milk and the like may be allowed, and to them the patient should be confined for some time after recovery.

When the patient begins to recover, his appetite sometimes outstrips his digestion, and care must, consequently, be exercised, not to exceed a very moderate quantity of food, even where the appetite is keen; for if too much be indulged in, the intestines will suffer increased irritation, and a severe relapse invariably follow.

The horizontal posture, and perfect rest, must be constantly observed during the acute stage of dysentery; and the greater the irritation, the more requisite they are. The patient ought not to give way to the frequent inclinations to stool, by which he is harassed, but stifle them as much as possible. The stools must be immediately removed from the patient's chamber, which should be freely ventilated, at all times, and kept perfectly clean.

For the constant griping and tenes-

mus which attends this disease, the best remedy is frequent injections of thin starch, combined with olive oil, to each of which, after the violence of the disease has been reduced, thirty to forty drops of laudanum may be added.

During convalescence, flannel should be constantly worn next the skin, and the most scrupulous attention be paid to avoid dews, damp night air, and sudden atmospherical vicissitudes, more especially in hot or unhealthy climates.

If pain and irritation are still occasionally felt, four or five grains of the compound ipecacuanha powder may be taken at bed-time.

In *chronic* dysentery, (that is, the protracted species of the disease, in which the acute inflammatory symptoms have subsided, or been subdued,) our objects are nearly the same as in the acute variety, only we are called upon constantly to remember, that debility is invariably associated with this form of the complaint, and therefore every proper means of preserving and increasing the general strength must be employed. Local bleeding by leeches or cups will, in most cases, be demanded; in conjunction with which, one of the best remedies yet discovered for chronic dysentery is calomel or the blue mass, combined with ipecacuanha and opium, in conjunction with the frequent use of the warm bath and frictions of the skin, rest, and properly regulated diet. Many patients, tormented for a long time by this painful malady, have been speedily relieved and ultimately completely cured by this plan of treatment. It is equally adapted to the protracted dysentery so often met with in hot climates, and to that of colder regions.

The diet in chronic dysentery must, of course, be mild, unirritating, and chiefly farinaceous. A very excellent diet here, is flour and milk, well boiled together, which, with a very little sugar and nutmeg, is highly relished by the debilitated patient.

The patient must constantly wear a flannel bandage round the bowels, and

keep the feet and legs warm by wearing woollen stockings and drawers.

Injections of flaxseed, or thin starch, olive oil and laudanum, are highly beneficial when a constant tenesmus attends the complaint.

CHOLERA MORBUS.

The prominent symptoms of cholera morbus are, inordinate and continued discharges from the stomach and bowels of a thin fluid, sometimes tinged, to a greater or less extent, with bile; spasmodic pains of the bowels and limbs, and often, in the early period of the disease, heat of the surface and accelerated pulse.

Cholera is most prevalent in hot climates and unhealthy situations; in the more temperate climates, it makes its appearance only during those months when the atmospheric temperature is at the highest.

In those districts where bilious fever is a prevalent disease, the cholera likewise occurs most frequently, and its symptoms are marked by the greatest degree of violence.

The persons most subject to its attacks are such as are of gross habits, who lead sedentary lives, or are intemperate in eating and drinking. The exciting causes of the disease are exposure to cold and moisture when the body is in a state of perspiration, sudden changes from heat to cold, improper articles of food, as those of an acrid nature, and difficult of digestion, unripe fruit, cabbage, cucumbers, melons, and the like.

Cholera morbus is occasionally ushered in by chills, pains of the head, vertigo, propensity to sleep, and a sense of numbness in the limbs. Sometimes the disease commences gradually; at others, it attacks suddenly. At first the patient is troubled with acid eructations and pains in the stomach; these symptoms are soon followed by vomiting, which is almost constant. At first the contents of the stomach are discharged; afterwards a fluid, sometimes green, whitish or colourless, and at others, dark coloured, or even

black. Discharges from the bowels of a similar character occur simultaneously with the vomiting. The patient, at the same time, experiences great thirst, pains in the stomach and bowels, and tension of the abdomen. If the disease be violent and protracted, the limbs are affected with spasm, the strength is greatly prostrated, the surfaces of the body and limbs become cold, the pulse small, frequent and often imperceptible, a cold clammy sweat breaks out, and is succeeded by continual hiccup, delirium and death.

Cholera is frequently attended with an internal sense of burning, and constant agitation of the body.

The continuance of the attack is variable. In violent cases, when proper remedies are not early resorted to, death takes place in a few hours; in milder cases, the disease may continue with slight intervals, for several days.

In the ordinary cases of cholera morbus, particularly when the discharges are green or tinged with bile, the best practice is to give the patient, plentifully of some mild diluent, as toast, gum, barley, or rice water; to place his feet in warm water, and subsequently administer an injection of a pint of thin starch, a tea-spoonful of sweet oil, and forty to sixty drops of laudanum.

In all violent cases, especially when the pain of the bowels is constant and severe, the free application of leeches or cups to the abdomen, mustard poultices to the extremities, and the administration by the mouth of a grain or two of opium, in a pill, will be demanded, and will often arrest the disease almost instantly. The same injection as recommended above, will also be beneficial when the discharges from the bowels are frequent and copious. After the vomiting and purging are suspended, it will be prudent to administer a dose of calomel, or a pill composed of blue mass ten grains, and opium one grain, which may require probably to be repeated on the ensuing day; the patient at the same time confining himself strictly to thin

gruel or panado, encouraging the healthy functions of the skin by the warm bath and frictions, and carefully guarding against cold and damp.

In those cases in which the powers of life appear to be sinking, the skin becoming cold, the pulse small and feeble, and a constant hiccup taking place after the vomiting, the patient should be placed carefully in a warm bath, after coming out of which his skin should be wiped perfectly dry by brisk frictions, and mustard poultices applied to the inside of his legs and arms, and over the stomach; at the same time we may administer by the mouth a tea-spoonful of the following mixture: compound spirits of lavender, two ounces; vitriolic ether, two drachms; laudanum, one drachm. The dose should be repeated every one, two, or three hours, according to the urgency of the symptoms. As it is all-important in these cases to put as early a stop as possible to the discharges from the bowels, which often continue after the vomiting has ceased, injections composed of a pint of water, in which has been dissolved twenty grains of sugar of lead, and two grains of opium, may be administered every three or four hours.

After the disease is arrested, calomel or the blue mass and opium should be administered, and the diet and regimen directed above observed.

For a long time after recovery, great caution must be observed by the patient to avoid cold and damp, all heating and indigestible articles of food, fatigue, exposure to the night air, and every species of intemperance.

EPIDEMIC OR MALIGNANT CHOLERA.

This severe and fatal disease first attracted the particular attention of the medical profession, by its appearance, and the dreadful ravages it produced in the interior of India, in the summer of 1817. With a few short intermissions, the disease has continued to prevail from that period to the present. It has spread over nearly the whole of India, visited Africa, the greater part of Europe, Ca-

nada, the United States, and South America; and it appears destined in its future progress to ravage every habitable portion of the globe. During the long period it has continued to prevail, and in the wide extent over which it has spread, many millions of the human race have been affected by it, a large number of whom it has consigned to the tomb.

The circumstances connected with the rise, spread and progress of cholera, indicate the dependence of the disease upon some morbid condition of the atmosphere, the exact nature of which has as yet escaped, and, perhaps, ever will elude, our researches.

Like all other epidemics, however, its occurrence, violence and malignancy are powerfully influenced by certain well-known local causes, many of which it is in our power to remove or escape from; and in this manner we may either prevent an attack of the disease, or render it comparatively mild, and divest it of its fatality.

Cholera has invariably prevailed most extensively, and been attended with the greatest mortality in the neighbourhood of marshes; in low, wet districts of country; along the low, muddy banks of rivers; and in crowded towns and villages, where ventilation and cleanliness are neglected. The greatest number of those attacked by the disease, have been among the poor, the vicious, and the intemperate; they who reside in low, damp and filthy huts and cellars; they who are continually exposed to fatigue and the inclemencies of the weather, without sufficient protection; and they who are obliged to subsist on unwholesome or unnutritious aliment. When persons in easy circumstances have been attacked, the disease has almost invariably been caused by excessive fatigue; intemperance in eating or drinking; the habitual use of intoxicating drinks; exposure to cold or damp, or to the night air; improper food, or that which is stimulating, indigestible, or liable to speedy fermentation; too long fasting; the use of impure water, or acid drinks;

prolonged wakefulness; the depressing passions of the mind; a broken-down constitution, or debility from previous disease, or an advanced age.

The means of guarding against an attack of cholera consist in the removal or avoidance of all the above predisposing or exciting causes, or as many of them as are under our control.

The course of conduct to be pursued by individuals, to insure immunity from the disease, is to seek, if possible, a pure, healthy situation in the country; to live temperately on plain, nutritive food, plainly cooked; to relinquish entirely rich, high-seasoned soups and sauces; all made dishes and pastry; salted, dried and smoked fish; pork, geese, ducks, crabs and lobsters; all crude, flatulent and acid vegetables; and all stimulating drinks, whether distilled or fermented. They should make use of active, regular exercise, in the open air, carefully avoiding, however, fatigue; partake of regular and sufficient sleep; avoid all crowded assemblies, the night air, wet and damp, and as much as possible, all care and anxiety, and every undue excitation of the passions. Personal cleanliness is all-important; hence the daily use of the warm bath, or sponging the surface of the body, night and morning, with tepid water, and friction of the surface, should never be neglected. With the observance of the above precautions, it is seldom that an attack of epidemic cholera is to be feared, even in places where it is prevailing the most extensively.

The symptoms of epidemic cholera are somewhat various in different cases. The attack of the disease is generally preceded for some time, often many days, by a disordered state of the digestive organs. The individual is affected with griping pains in the stomach and bowels, or a sense of fullness, weight, burning and uneasiness in the abdomen; he feels languid, disinclined to exertion, whether of body or mind; a rumbling noise is almost constant in the bowels, as of wind passing through a fluid; there are often pain and giddi-

ness in the head, and pain in the knees and loins, with flying stitches in the calves of the legs; the tongue is covered with a white or yellowish mucus; the appetite is diminished, and the thirst increased. Most commonly the patient is affected with nausea, and frequent thin discharges take place from the bowels, or there is a constant inclination to go to stool, without any thing excepting perhaps a little slime being passed, sometimes streaked with blood. The pulse is very various, sometimes full and strong, at others small and contracted. Some individuals are affected with the foregoing symptoms during the prevalence of the epidemic in their vicinity, without being attacked by cholera; in others, particularly in the intemperate, and those of debilitated or broken-down constitutions, the discharges from the bowels soon become more copious, thin and watery, each evacuation being succeeded by a sense of extreme exhaustion or faintness, and the attack of cholera is developed in a few hours; the latter may be produced almost instantly, in those affected with the premonitory symptoms, by errors in diet, intemperance, exposure to cold and damp, or extreme fear.

It is all-important, during the prevalence of the epidemic, to pay strict attention to every, even the slightest, disorder of the stomach and bowels, and remove it at once, by appropriate remedies. In the young and robust, bleeding from the arm will be demanded; and in other cases, when the symptoms are violent, cups over the surface of the abdomen will be found to afford prompt and effectual relief. In every instance, the warm bath, or bathing the feet in warm water, followed by friction over the abdomen and extremities, is an important remedy. These measures should be followed by the use of some light astringent; perhaps the best in ordinary cases is the cretaceous mixture, with the addition of a few drops of laudanum. When the discharges from the bowels are slight, and merely thinner than natural, particularly if attended

with griping and tenesmus, a dose of castor oil, combined with twenty or thirty drops of laudanum, should be administered in the morning, and an injection of thin starch, and forty drops of laudanum, at bed-time.

When the evacuations from the bowels are more copious and fluid, the following pills will in general arrest them, and produce natural and consistent stools, when their use has been preceded by the application of cups to the abdomen, immersion in the warm bath, and by frictions of the skin: blue mass, from fifteen to twenty grains; opium, two grains and a half; ipecacuanha, five grains; to be made into five pills, one of which is to be given every two or three hours, according to the urgency of the symptoms, and continued until the healthy functions of the stomach and bowels are restored. The patient should be confined to rice or toast water, taken cold, in moderate quantities at a time; and after the disease is completely removed, he should be restricted to well boiled oat-meal gruel, panado, milk thickened with rice flour, or beef tea. In cases, however, in which the disorder of the bowels is not speedily relieved by the use of the above pills, the following may be resorted to, namely: opium, five grains; camphor, ten grains; acetate of lead, one scruple; to be made into twelve pills, one of which may be taken every two or three hours, according to circumstances.

The attack of cholera may be divided into three distinct stages. In the first, there is almost constant vomiting and purging, of a thin flocculent, almost transparent fluid, like rice water; attended with violent spasmodic pains of the stomach and bowels, which come on at intervals; inordinate thirst, and in severe cases, painful and violent cramps of the legs and arms. The skin is warm, bathed in perspiration, and has a peculiar soft, doughy feel. The tongue is moist, and covered with white mucus. The hands and feet are often cooler than the rest of the body, while the abdomen is often of an in-

creased temperature. The pulse is sometimes full and firm ; at others soft, or small and hard. The countenance is expressive of deep distress ; but the mental faculties are unimpaired. The urine is either deficient in quantity, or its secretion is entirely suspended.

In the second stage of cholera, the discharges from the bowels still continue, attended with vomiting ; the vomiting, however, sometimes ceases, or comes on less frequently ; the patient complains of pain, or a sensation of burning in the stomach ; the cramps of the extremities continue, with increased violence ; the heat of the skin is greatly reduced, and the whole surface of the body is covered with a profuse, cold, clammy perspiration ; the tongue is decidedly cold ; the skin of the extremities has a corrugated appearance, as if soaked in warm water, and in common with that of the face, has a livid or bluish appearance ; the eyes are sunk, the features contracted, the pulse small and feeble ; there is great thirst, and a constant desire for cool air ; the secretion of urine is completely suppressed ; the mental faculties are still unaffected.

In the third stage of the disease, the whole surface of the body, as well as the tongue and inside of the mouth, is icy cold, of a deep blue or purple colour, and constantly covered with a profuse perspiration, which stands in large drops upon the skin ; the extremities are corrugated ; profuse involuntary discharges of a colourless fluid are poured from the bowels ; the voice is low, husky, and almost extinct ; no pulsation can be detected in any of the superficial arteries, and the action of the heart is slow and feeble ; the respiration is short and quick, with a peculiar heaving of the chest ; the patient complains of a burning heat at the stomach, and craves incessantly cold water and fresh air ; he is extremely restless, tossing about in every direction, or else lies in a kind of doze, with half-closed eyelids ; the mental faculties are still unimpaired. After conti-

nuing in this state for a longer or shorter period, he expires.

The moment an attack of cholera has taken place, a prompt resort should be had to active remedies ; the loss of a few hours often seals the fate of the patient. If the pulse be full and strong, and the attack recent, a vein should be opened in the arm, and a quantity of blood drawn off ; the pulse being watched during the operation ; if it sink, the arm should be at once tied up, and cups applied over the abdomen and along the spine. When bleeding from the arm is not thought advisable, the cups should be applied at once. The limbs of the patient are then to be well rubbed with the volatile liniment, and mustard poultices should be put on the ankles, thighs and wrists. An injection of one pint of thin starch, half an ounce of sweet oil, and sixty drops of laudanum, will often be advantageous. The patient should be supplied from time to time with a table-spoonful of iced water ; or, when this is instantly rejected by the stomach, a tea-spoonful of powdered ice, every fifteen minutes. If any symptoms of a congested state of the brain be present, cups should be applied to the head, or nape of the neck. When the stomach becomes calm, the bluc mass, in doses of from three to five grains, with half a grain of opium, may be given every three hours. This very generally produces, in a short time, consistent dark-coloured stools, which are followed by natural evacuations. After recovery, the same precautions in regard to diet are necessary, as after the removal of the premonitory symptoms.

In the second stage, the frictions, poultices, cups to the abdomen, and ice internally, should be resorted to, as in the first. If on opening a vein in the arm, a few ounces of blood can be obtained, the pulse will often be found to rise with the flow of blood, and warmth return in the extremities. The frictions should be frequently repeated, dry heat applied to the feet, and an anodyne injection given, as in

the foregoing stage; after reaction has been fully established, the blue mass and opium are to be given, as above.

In the third stage, but little can be done to save the life of the patient. Cups may be applied to the abdomen, and along the spine; and the patient should then be wrapped in dry blankets, and supplied with small portions of powdered ice every ten or fifteen minutes. Injections of thin starch, with sixty drops of laudanum, and twenty grains of sugar of lead, may be given occasionally; they have been known, in some cases, to arrest the discharges from the bowels, which is an object of very great importance. Should the skin become warmer, and the pulse perceptible at the wrist, the case should be treated as directed in the second stage.

For a long time after recovery from cholera, the utmost care should be observed in regard to diet, and to avoid exposure to cold and damp, and fatigue. The slightest disorder in the stomach should be at once attended to, and removed; a relapse is easily excited by the least inattention or imprudence, and it is often more unmanageable than the first attack.

CHOLERA OF INFANTS.

Cholera occurring in infants is a very common and destructive disease in most of our large towns during the summer and autumnal months. It occurs in children from a few days to two years of age, but seldom beyond the latter period. The predisposition to it appears to be produced by a heated and impure air, and an inattention to personal cleanliness, and hence it prevails most extensively among the children of the poor. Its exciting causes are the irritation of teething, improper or too much food, or exposure to cold and damp.

It generally begins with a looseness of the bowels, which continues for several days without the stomach being much affected; in many cases, however, the child is attacked from the first by an almost constant vomiting

and purging, attended with considerable fever. The matter discharged from the bowels is at first greenish, sometimes slimy, mixed with blood; but in violent cases, the discharges soon become perfectly limpid, like water. The child generally suffers considerable pain, which causes it to be fretful; it is never easy in one posture, and is observed to draw up the feet, and frequently to utter loud screams. The pulse is quick and frequent, the thirst inordinate, the fluid taken being immediately discharged. The fever and all the symptoms increase towards evening. The head is usually very warm, while the extremities retain their usual heat, or, in violent cases, become somewhat cold. In some cases the infant becomes affected with delirium, tosses its head backwards and forwards, and attempts to bite or scratch its attendants. The abdomen is frequently swollen and tense. The body becomes rapidly and extremely emaciated; the eyes languid, hollow and glassy. The insensibility of the system is often so great, that flies may alight upon the half-open eyelids, as the child lies in an imperfect doze, without exciting a motion in the eyelids to remove them. Sometimes vomiting continues without purging; more frequently, the purging continues without the vomiting. In the advanced stages of the disease, the stools are often profuse and very offensive; in other cases they are small in quantity, and composed merely of the food and drinks taken. The disease is sometimes fatal in a few hours, or it may last for many days, reducing the little patient to a perfect skeleton; the skin becoming of a dark brown hue, and covered with livid specks; the mouth affected with aphthæ. Hiccup or convulsions often come on, which quickly terminate in death. Sometimes dropsy in the brain is produced, and after continuing many days, destroys the life of the patient.

The means of preventing this disease are all-important, for in too many instances it does not admit of a cure.

These consist, 1st. In removal, if possible, to the cool fresh air of a healthy part of the country; or if this can not be effected, the child should be taken out frequently in the open air, in the arms or in a carriage; or when it resides near a large river, sailing daily in an open boat is an admirable preventive. So powerful an influence has pure, cool air over this disease, that the mere removal from the hot, confined and unwholesome air of the city, has been known to arrest the disease almost instantly. Even the occurrence of a cool day will abate its violence, and produce a favourable change in its symptoms. 2dly. In a proper diet. The breast-milk of the mother, or when the child is weaned, preparations of milk, with biscuit, rice, barley, arrow-root or tapioca, or plain beef-tea, or chicken-water, with stale bread, should be the only aliment allowed, particularly during warm weather. Fruit, rich meats or gravies, pastry, spices and stimulating drinks, are almost certain to produce the disease in the predisposed. 3dly. In a strict attention to cleanliness. The apartment of the child, as well as its clothing, should be kept perfectly clean and dry, and its body should be immersed daily in a tepid bath, and subsequently dried by gentle friction with a soft cloth. 4thly. In proper clothing. The clothes should not be too warm, so as to overheat the infant, nor so thin and light as to expose it to the influence of every slight change in the temperature of the air.

When the disease has occurred, it should be attended to in its earliest stage. The moment the infant is affected with diarrhoea, it should be immersed in a warm bath, and one of the following powders given to it every three hours: magnesia and prepared chalk, of each, three grains; ipccacuanha, a quarter of a grain. At the same time it is to be confined solely for food and drink to the breast-milk, or to rice-water, sweetened with loaf-sugar. The warm bath may be repeated the ensuing day, and the belly

should always be enveloped in a soft flannel roller, not too tightly drawn. When the discharges from the bowels are very thin and copious, and attended with but little fever, and no symptoms of an affection of the head, an injection may be given of a gill of thin starch with three or four drops of laudanum, according to the age of the child.

When the patient appears to suffer from much pain, has a hot, dry skin, a tumid abdomen, and much heat exists about the stomach, leeches should be applied upon the upper part of the belly, in numbers proportionate to the age and strength of the infant, and the violence of the symptoms. The warm bath should be repeated night and morning. A tea-spoonful of cold water may be allowed every quarter of an hour, but the ordinary drink should be rice or gum-water. Leeches to the temples or behind the ears, with cold applications to the scalp, are all important, also, in those cases in which the head is very warm, or symptoms of irritation of the brain or delirium are present. In such cases, mustard poultices may likewise be applied to the soles of the feet.

The vomiting is often extremely violent, and almost continual in the more aggravated cases; under such circumstances one of the best remedies that can be employed is a very small dose, say one-sixth of a grain, or even less, of calomel, repeated every half hour or hour, together with a few leeches to the stomach, and the warm bath. The best mode of administering the calomel is to rub it up in a mortar with a little dry loaf-sugar, and then sprinkle it upon the tongue; when the vomiting is severe, cold toast water, or coffee without sugar or milk, is the best drink.

When the vomiting is removed and the discharges from the bowels abated, a combination of three grains of magnesia, the same quantity of prepared chalk, one eighth of a grain of calomel, and one sixth of a grain of ipccacuanha, may be given every three

hours, until natural evacuations are procured.

In the advanced stages of cholera in infants, we may attempt the removal of the disease by the frequent use of the warm bath, a blister over the stomach, anodyne injections, composed of thin starch and a few drops of laudanum; and internally, some light astringent, as kino, decoction of dew-berry root or geranium maculatum, with a change of air and a diet of boiled milk, thickened with rice-flour.

After recovery, the same rules are to be observed as were directed for the prevention of the disease.

ILIAC PASSION.

The iliac passion is a severe and painful affection of the bowels, in which the patient is racked with most acute pain, accompanied with costiveness and vomiting, and this not only of the contents of the stomach, but also of bile, and even of matters proceeding from some portion of the intestinal tube yet farther from the stomach. So completely is the downward progressive motion of the bowels inverted, that articles which have been given by way of clyster, have been known to be vomited by the mouth. Costiveness sometimes precedes the disease for some days, and the pain is felt very much about the navel. These symptoms may occur without fever, but it is unlikely that so violent suffering and such disordered action of the intestines should not both excite much irritation in the nervous system, and also induce inflammation in the bowels; and therefore, if the iliac passion be not very quickly relieved, we may expect soon to find heat, thirst, restlessness, quickened pulse, and pain in some part of the abdomen on pressure. It has been ascertained by examination of the bodies of those who have died of this disease, that it is caused by a spasmodic action or cramp occurring in some part of the intestines, or by one part of the gut being drawn within the other; and the knowledge of this circumstance leads us at once to be

cautious in our prognostics, and to the necessity of prompt and decided treatment.

Iliac passion may be brought on by the use of food that disagrees with the stomach and bowels, by long-continued costiveness, or hardened stools, by some metallic poisons taken into the system, and by cold applied to the feet or other parts of the surface.

In cases of iliac passion, it is always advisable in the very commencement to bleed, and that even largely and repeatedly, both to prevent inflammation coming on, and to take off the spasm of the bowels. This removal of spasm is to be further promoted by the application to the belly of flannels wrung out of hot water, or by putting the patient in the warm bath. It would be a most desirable object to give purgative medicines by the mouth, in order to restore the downward action of the intestines, and to discharge any irritating matter which they may contain; but unhappily the stomach in general quickly rejects them all, and so frustrates our purpose. Under these circumstances, we must have recourse to opium, which frequently relieves the pain, stops the vomiting, and permits us to use the proper purgative medicines. For this purpose, the tincture is not so good as solid opium, one or two grains of which will remain on the stomach, when thirty or forty drops of the medicine in a liquid form would be rejected. The patient should endeavour to refrain from drinking any thing till the opium has allayed the irritation. The abdomen should be freely leeches, and a large blister may then be applied. If the opium, leeches and blister diminish the irritability of the stomach, we are to try the exhibition of calomel, giving four grains every hour; and it is better retained when given dry by itself or with a little loaf-sugar, than when mixed with jelly or any similar substance. A dose of senna, or castor oil, or sulphate of magnesia, may be given an hour after the third or fourth dose of the calomel. From half an ounce to an ounce of

turpentine often proves a most effectual purgative. Clysters should never be omitted: at first the milder kinds should be tried, as a large quantity of warm gruel, with a little oil, and salt; or an infusion of senna, with a portion of sulphate of magnesia. These should be thrown in with considerable force. If these remedies fail, a very effectual, but a very hazardous one must be tried—the injection of an infusion of tobacco, in the proportion of a drachm of the leaves to an English pint of water. This is very generally followed by the most remarkable sickness, relaxation of the system, and depression of strength, and must never be given but under the direction and personal superintendence of an experienced practitioner. It was at one time thought a proper mode of practice to remove the obstruction of the bowels by mechanical means, as by the weight of large quantities of quicksilver; but a moment's reflection must show, that from the numerous convolutions of the intestines, and the numerous changes of their direction, no column of mercury can make the direct pressure requisite to remove the obstructions that may exist in various parts of the bowels. Metallic quicksilver generally passes through the bowels, without undergoing any change.

WORMS.

There are several kinds of worms which infest the intestinal canal of man, but the chief are the *ascarides*, or small white thread worms, mostly found in the rectum, or last gut; the *lumbrici*, or long round worms, usually found in the small intestines; and the *tania*, or tape-worm, which occupies the upper part of the intestinal tube, and is occasionally found in every part of it.

Worms can hardly exist in so sensible and highly organized a part as the intestines, without producing some degree of irritation there, and we are certain that irritation can not take place in that canal without producing, sooner or later, and in a greater or less de-

gree, disagreeable effects in various parts of the system, and especially in the stomach and head. Hence these animals frequently occasion a variable appetite, which is sometimes deficient, at other times voracious; pains in the stomach; fetid breath; nausea; headache; vertigo and giddiness; cough; irritation about the nose and anus; disturbed sleep; and a disordered state of the bowels. In children, hardness and fullness of the belly also frequently occur, with frequent slimy stools, and sometimes convulsion fits. In adults, as well as in children, worms not unfrequently give rise to severe epileptic fits, and sometimes occasion great emaciation.

Worms most frequently occur in persons of a relaxed habit, especially in those whose digestive organs are disordered. An excessive use of vegetable food, of fruits, of sugar, or any other saccharine substance, very strongly favours their generation. The reason why children are more infested with them than adults, is supposed by some to be chiefly because they are allowed to indulge to excess in eating sweet things, to the partial or total neglect of salt. The generation of worms in the intestines would appear, however, to be occasioned by whatever has a tendency to disorder the health of these organs; whether excessive indulgence in food, or in that which is irritating and indigestible, want of sufficient exercise, confinement within doors, or exposure to a damp, moist and impure atmosphere.

Simple irritation of the stomach and bowels will often produce all the symptoms above described, and, in some cases, it is difficult to ascertain whether worms do or do not exist in the bowels, when none have ever been discharged. In such instances, we can determine the real nature of the case only by an attentive consideration of all the symptoms which are present. It is important, also, to recollect that when worms are actually present in the bowels, all the symptoms of disease under which the patient labours may not be owing

to them, and will not be removed even though we should succeed in completely destroying the worms.

The fundamental principle in the treatment of worms is, to restore health to the system generally, and the stomach and intestines in particular, and thus not only to dislodge the worms, but to render them incapable of reproduction. On this principle, it will be found almost invariably, that those medicines and plans of treatment, are the most eligible, which tend directly to restore the healthy functions of the stomach and bowels, and to invigorate the whole constitution, at the same time that they expel the worms.

A great deal has, at different times, been said about the efficacy of certain medicines in the cure of worms, but many of these are unnecessary or even injurious. There are few cases which will resist the proper use of salt, more especially if the usual means of invigorating a weakly constitution be resorted to, and rich food, flatulent and crude vegetables and saccharine substances be avoided as much as possible. Salt is a natural and necessary stimulant to the digestive organs; it excites them to a healthy and vigorous action, and is particularly obnoxious to all kinds of worms. Persons troubled with these animals should, therefore, increase their quantity of salt at each meal; lessen that of every kind of sweet food; avoid partaking much of vegetables; regulate the bowels by the occasional employment of a purgative, as castor oil, magnesia and rhubarb, or a pill of three grains of soap, two of aloes and one of gamboge, for an adult, and avail themselves of the usual means of strengthening the general habit, by having recourse to daily active exercise, early rising, the use of the tepid bath, frictions of the skin, &c. These measures are highly advisable and useful, whatever kind of medicine is employed. At the same time, a dose of salt and water—for example, a drachm or two of common salt, dissolved in a gill of water, should be taken in the morning, fasting, and repeated at the

end of three or four days. This will generally act as a purgative, and will certainly bring away almost every kind of worm. If necessary, the repetition may be extended to a third or fourth time, and in very severe cases, the quantity of salt used at each dose may be increased.

This plan is applicable to the cases of children, as well as to those of adults. As a purging portion for young children, a common-sized tea-spoonful of salt dissolved in a wine-glassful of water, will usually be sufficient.

Preparations of iron are sometimes very useful in expelling worms, and in strengthening the alimentary canal, so as to preclude their reproduction. They are, in general, very appropriate remedies when considerable debility has been induced from the irritation excited by the worms. Therefore, if the patient be averse to using the salt and water purgative, he may take occasionally the following pill: carbonate of iron, three grains; ipecacuanha, half a grain; extract of gentian, one grain; aloes, half a grain; not forgetting to attend, at the same time, to the advice given above respecting diet and regimen. By degrees the quantity of carbonate of iron should be increased to double what is ordered above.

Camphor has been highly praised, for its virtues in cases of worms, by many eminent physicians. An Italian physician of the name of Brera, who has lately published an approved work on verminous diseases, has great confidence in it, and asserts, that he has always employed it with marked success. Eight or ten grains of this substance may be dissolved, by means of a few drops of rectified spirit of wine, in an ounce and a half of water, and a tea-spoonful taken twice or thrice a day. This may be tried alone, or taken in the intervals between the use of the salt and water purgative. It appears to be particularly efficacious in the destruction of the long round worms (*lumbrici*).

For tape-worm, the oil of turpentine is an effectual remedy. An ounce may

be given to an adult, or the fourth of an ounce to a child, and may be repeated the second or third time in the course of a fortnight. It may be swallowed simply suspended in water. It is seldom advisable to repeat it more than three times, unless under the direction of a medical practitioner.

Lately, the pomegranate bark has been found very useful in obstinate cases of tape-worm. It appears to have advantages over the oil of turpentine, from its being quite harmless, not nearly so disgusting, producing its effect with great rapidity, and in not requiring any preparative treatment. The mode of administering it is, by boiling two ounces of the bark in a pint and a half of water down to a pint, the whole of which is to be taken in the course of the morning, fasting, in four draughts, with an interval of half an hour between each. Sometimes it will bring away the worm on the first day, in other cases it is necessary to repeat the medicine to the second, third, and even fourth time, precisely as above directed.

In the small white thread worm, so often infesting the last gut in children, half a pint or a pint of lime water should be injected once a day, and calomel and jalap or a dose of castor oil, be given once a week, for three or four weeks. Or, instead of the lime water, a strong decoction of wormseed, or a solution of salt and water, may be injected after the same manner. This plan is generally successful.

The bristly down of the pods of cowhage is also a powerful remedy for worms.

A great number of other medicines have been recommended, as pink-root, tin filings, male fern, tansy, rue. Several of them are very useful; but the preceding remedies are the most powerful and the best, and will very rarely fail in affording satisfactory relief.

Worm lozenges, and other patent medicines sold for the cure of worms, are composed chiefly of calomel, or some other active purgative. They are, no doubt, sometimes beneficial,

but the foregoing measures are by far more eligible, and those who adopt them will find no need of resorting to any secret preparation.

The best diet and regimen for persons troubled with worms is that recommended for *dyspepsia*. We would remark, that while plenty of salt eaten with fresh animal food is useful in cases of worms, salt meat is very objectionable.

POISONS.

A knowledge of the phenomena produced by such poisonous articles as may be taken into the stomach, either intentionally or by accident, and of the treatment necessary to be pursued to counteract their effects, and preserve the life of the patient, is a subject of very great importance, not merely to the medical practitioner, but to every individual in society. The effects produced by many poisonous substances, take place with such promptness, that but little time is presented for the exhibition of remedies, and the patient is often destroyed before the physician arrives; whereas, had a proper treatment been immediately instituted, the fatal result might have been prevented.

The subject of poisons, when investigated in relation to all the points involved in it, is one of very great interest to the physician, the medical jurist, as well as to all who are liable to be called upon in the solemn and highly responsible character of a juryman, whether upon an inquest or in a court of justice, to determine upon the cause of death in any given case, where a suspicion of murder exists; or to decide upon the guilt or innocence of a fellow-being arraigned for administering deleterious drugs, for the purpose of destroying life. To enter into this investigation would, however, far exceed the limits to which we are necessarily restricted: we shall confine ourselves, therefore, to a brief account of the leading effects produced by the introduction into the stomach of the various classes of poisons, the antidotes proposed for the principal articles of these classes, and the general medi-

cal treatment demanded in cases of poisoning.

Poisons may be divided into the *corrosive* or *acid*, the *narcotic*, and those acting both as corrosives and narcotics, the *narcotico-acrid*.

The symptoms resulting from the first class, or acid poisons, in addition to the particular taste of the article itself, are heat, irritation, or an extraordinary and sudden sensation of dryness, constriction and roughness, at the root of the tongue, and in the gullet; these are succeeded by violent efforts to vomit, and sharp pains in the stomach and intestines; there is also great thirst, copious discharges by vomiting and stool, attended with much straining, and followed by hiccup; a sense of constriction across the diaphragm, and difficulty of breathing; pain is generally felt about the kidneys, followed by strangury: convulsions at length come on, or cramps of the hands, trembling of the limbs, extinction of the voice, repeated fainting, cold sweats, and usually a hard and irregular pulse.

The narcotic poisons produce the following effects: stupor, numbness, a great inclination to sleep, coldness and stiffness of the extremities, a cold sweat of a fetid or greasy nature; swelling of the neck and face; protrusion of the eyes, with a haggard cast of countenance; thickening of the tongue; frequent vertigo; impaired or depraved vision; delirium; general debility; palpitation of the heart; the pulse, at first full and strong, afterwards becomes unequal and intermittent; there is also paralysis of the lower extremities; retraction of the lips; general swelling of the body, and swelling of the veins. At the conclusion of the disease, slight convulsions and pain are sometimes present.

The effects of the narcotico-acrid poisons are distinguished by a combination of several of the symptoms of both the foregoing classes. There is generally agitation; pain; acute cries; sometimes stupor, and convulsive motions of the muscles of the face, jaws, and extremities; vertigo, and occasion-

ally extreme stiffness of the limbs, and contraction of the muscles of the thorax; the eyes are red and starting from their sockets; the pupils frequently dilated; there is often great insensibility to external impressions; the mouth is full of foam; the tongue and gums livid; with nausea, vomiting, frequent stools, &c. Often these symptoms attack in paroxysms, and between them the patient is left comparatively easy for a few moments.

It might appear easy, from an attention to the symptoms we have recited, to distinguish the nature of the poisonous article, under the effects of which the patient is labouring; but nevertheless, in practice, nothing is generally more difficult. Substances very different in their nature, produce similar effects; as, for example, cantharides, certain acid vegetable substances, and the caustic minerals. The difficulty is increased by the circumstance, that articles of ordinary food, perfectly innoxious in themselves, so far as regards any poisonous property, in certain conditions of the stomach, and in certain constitutions, when eaten, sometimes cause the most alarming symptoms. Roasted cheese, fish, crabs, lobsters, clams, mushrooms, or even apples and cherries, have been known to produce the most alarming symptoms, and cause a suspicion of poison having been taken. A variety, also, is frequently observed in the symptoms caused by the same poison in different persons. Many circumstances may conduce to this, such as

1st. The mode in which the article has been taken. When swallowed in a liquid form, the effects of a poison are generally more prompt and marked than when it is taken in a solid state.

2d. If the article be taken on a full or empty stomach, its effects will vary; being much more rapid and certain, in the latter case, than in the first.

3d. The circumstance of vomiting occurring immediately, or not until after a considerable time, will produce a difference in the effects of the poison.

In the former case, the article may be rejected from the stomach before it has had time to produce any injurious effects. Thus, large doses of arsenic have been taken intentionally as a poison, but in consequence of copious vomiting instantly following, the lives of the individuals have been preserved.

To distinguish cases of poisoning from accidental affections of the stomach, produced by other causes, demands, on the part of the practitioner, a judicious and cautious examination of every circumstance relative to the character and disposition of the patient; the possibility of his having taken poison; the article of which he had last eaten or drunk; the vessels in which it had been contained; the patient's own confession, if able to speak; the relation of his friends, &c. The diseases and symptoms most likely to be mistaken for the effects of poisons, are probably those produced by idiosyncrasy and indigestion, and cases of sudden and unexpected illness. But the most striking cases of resemblance to the effects of poisons, probably occur in those who, after being long accustomed to a particular species of food, for the first time use another kind. The town of Martigues, in France, is almost entirely inhabited by fishermen, who live upon fish from their infancy. Fodoré, during the last year of his residence there, often prescribed meat soup to his patients, but in every instance, its administration was followed by violent nausea and vomiting. They confessed it was the first time they had ever used aliment prepared from meat.

The treatment, in cases of poisoning, varies according to the individual articles taken. As a general rule, in those cases in which the corrosive and acrid poisons have been swallowed, the indications of cure are,

1st. To endeavour to discharge the poison as quickly as possible from the stomach.

2d. To endeavour to destroy its poisonous properties, by the administration of antidotes. And

3d. To prevent or subdue inflammation.

The first indication is to be effected by the administration of an active emetic; or, if vomiting has already occurred, in general by the copious administration of diluents; or we may attempt to remove the article from the stomach, by an appropriate pump.

The different antidotes will be pointed out, when we consider the individual poisons.

The third indication is to be fulfilled by the remedies detailed, when speaking of gastritis and enteritis, namely: bleeding, both general and local; fomentations, blisters, &c.

Arsenic. This is an article very frequently made use of to destroy life; it is, also, often taken in mistake for other articles, nearly resembling it in their external appearance, either of an alimentary or medicinal character. The frequency of accidents from this poison requires that we should treat of it rather more minutely than will be necessary in relation to most of the other substances belonging to this class.

Arsenic may be taken in such quantity as merely to produce disorder of the stomach and system, without necessarily destroying life; or it may be taken in such quantities as to produce death at a later period than twenty-four hours; or, lastly, the quantity may be such as to induce death within twenty-four hours. Albritter, in the Edinburgh Medical and Surgical Journal, has given a description of its effects, according to the above arrangement, drawn from a careful comparison of all the cases which have occurred in the course of his reading; which description we shall follow:

When taken in the slightest portion, the symptoms produced by arsenic, are uneasiness at the stomach, with a sense of heat. When the dose is somewhat greater, but not so great as to produce death, violent vomiting is commonly the first symptom; although, in some instances, it is preceded by a sense of heat in the tongue and throat.

in other cases, these sensations are not felt during the whole course of the disease. When the vomiting is immediate, and the poison has been taken on a full stomach, the patient seems to owe his escape to the poison being discharged before it has had time to act.

The next symptom claiming attention is purging, sometimes of blood; but purging is less frequent in the slight cases, than in those where the degree of poisoning is greater. In the region of the stomach and bowels, pain is frequently felt: it is often, however, rather an unsupportable uneasiness and oppression than pain, properly speaking. The stomach is not described as swelling; in one case in which there was hiccup, cruetation and difficulty of breathing, the abdomen is said not to have been tense or swollen. A sensation of coldness, especially of the extremities, with cold sweats, seems nearly always to have been present, with general paleness of the face and surface; and in some cases languor, faintness, and a tendency to sleep. In this degree of poisoning, convulsions are not frequently observed; and thirst and fever are seldom present; in one case only, is a sense of heat in making water mentioned.

In the second degree of poisoning from arsenic, when the patient lives a day or two, the first sensations are heat and thirst, vomiting, or inexpressible distress. The first is less frequent than the two others; purging is not mentioned as a symptom; in one case, griping is noticed; in two, the abdomen was tumid; in one, there was great feebleness and lassitude; in all, convulsions took place; in one case, impeded deglutition, pain in the stomach, tenesmus and hoarseness, are noticed as having occurred.

In the third degree of poisoning, when death takes place within a few hours, the symptoms succeed each other rapidly, or occur at the same time; fainting and general debility almost invariably precede the vomiting, which occurs in most cases, as well

as purging and griping. In one case, there was vertigo, with general pains and loss of speech; convulsions did not often occur; there was sometimes hiccup. In a few cases there was much heat and thirst; frequently the patients complained of a sensation of intense cold; this, in one case, was accompanied with palsy of the limbs and cold sweats: death seems to have generally proceeded from exhaustion and rapid sinking of the vital powers. In none of the cases in which the poison was taken internally is there any mention of delirium or any affection of the mind.

The indications in the treatment of poisoning from arsenic are, 1. To remove the poison. 2. To protect the stomach and intestines from its effects. 3. If the patient survive sufficiently long, to diminish inflammation.

The removal of the poison is to be attempted by emetics of sulphate of zine, or if vomiting be present, by the aid of diluents or a vegetable emetic. Tartrate of antimony should never be administered. But when vomiting does not quickly ensue from these means, the urgency of the case demands a resort to more direct remedies. The stomach may be washed out by means of a large elastic tube and syringe; in this manner, a quantity of liquid is to be thrown in, so as to dilute or suspend the poison, and by means of the syringe, the whole may be again withdrawn. By this procedure, we may, in many cases, succeed in saving the life of the patient: the invention of the stomach-pump claimed by several late British physicians, is due, we believe, to Dr. Alexander Monro; but Dr. Physick was the first who tested its practicability by actual experience.

The second indication may be effected by means of milk, lime-water, soap, and drinks sweetened with sugar or honey. Fatty or oily substances are of doubtful utility. According to Renault, they are actually dangerous, rendering the effects of the poison more certain.

In a case reported by Joseph Hume,

life was saved by administering freely, after vomiting had ceased, retching and pain, however, remaining, the carbonate of magnesia, with laudanum suspended in water; one or two cases subsequently reported are in favour of this practice.

The third indication is to subdue inflammation by the same remedies as in ordinary inflammation of the stomach.

For arsenic we unfortunately possess no antidote, strictly speaking. The *sulphate of potash* had once a high reputation as such; but so far from this being the case, it is itself a poison, and the experiments of Renault have proved that it increases the poisonous effects of arsenic. Sulphur has been proposed, on the principle of its uniting with the arsenic; it is, however, deserving of no confidence. Charcoal was suggested in consequence of the experiments of Bertrand, but according to Orfila, it is without efficacy. Dr. Chisholm recommends the juice of the sugar-cane as the best antidote for arsenic.

Corrosive Sublimate. Besides the ordinary symptoms caused by corrosive poisons, the present article produces a peculiar sense of stricture and burning heat in the throat and gullet, increased when attempts are made to swallow; there is also a dysenteric affection, bloody vomiting, and sometimes diminished or even suppressed secretion of urine. The treatment of poisoning from this article is to administer an emetic, or if vomiting is present, as large a quantity of the white of eggs, well mixed with water, as the stomach can contain. By the experiments of Orfila, it is proved that albumen decomposes corrosive sublimate, forming a triple compound, consisting of albumen, muriatic acid and calomel. Dr. Taddei, of Italy, has lately recommended wheat flour, starch or gluten, mixed with water, as an antidote to corrosive sublimate; hence, when the whites of eggs are not at hand, either of the latter should be employed as directed above.

Along with these, bleeding, &c. may be had recourse to, to overcome the inflammation already excited. The plentiful use of mucilaginous drinks is also very proper as an accessory remedy. The *antidotes* to corrosive sublimate are, therefore, albumen and vegetable gluten.

Emetic Tartar. This substance, in large doses, is undoubtedly a poison. It is by no means, however, so destructive as either of the foregoing. The remedies are, if vomiting be present, to wash the article from the stomach by large draughts of tepid drinks; if vomiting be not present, to excite it by tickling the throat and fauces, and by the administration of large quantities of warm water. If, notwithstanding these means, vomiting be not induced, we are to resort to antidotes. These are decoctions or infusions of any astringent vegetable substances. The following may be employed: a decoction of bark; strong tea; a decoction of galls, of oak-bark, or of any of the other astringent roots or barks. The above articles are named in the order of their efficacy. From the experiments of Berthollet, the Peruvian bark would appear most certainly efficacious, and when it can be procured, should invariably be preferred. When the vomiting is excessive, opium may be administered. To remove the secondary symptoms, the antiphlogistic treatment generally will be demanded.

The Salts of Copper. These, in certain doses, are all poisonous. Verdigris, or the impure carbonate, is the one most commonly employed. The symptoms are the same as in the case of other corrosive poisons. We are to endeavour, when it has been taken, to evacuate it from the stomach by the same means as have already been mentioned. Sugar was once considered as the antidote for this poison. Subsequent experiments, however, have lessened the estimation in which it was at first held, and have pointed out *albumen* as the article most to be depended upon; hence, the whites of eggs mixed with water are to be ad-

ministered at first; their operation being aided by the use of large quantities of sugar and water. Should inflammatory symptoms remain after the presumed evacuation of the poison, bleed actively. For the removal of the spasmodic affections that are apt to remain, opium and antispasmodics will be required.

Sulphate of Zinc. When taken in an over-dose, vomiting should be excited by copious draughts of warm water, emollient drinks, &c. Milk is the proper antidote. Inflammation is to be prevented by the ordinary means, and irritation allayed by opium.

Muriate of Tin. The treatment is the same as in the former article; milk, according to the experiments of Orfila, is also its proper antidote.

Nitrate of Silver. When accidentally taken in an over-dose, a solution of common salt in water is to be administered; at the same time, the patient should take plentifully of emollient and mucilaginous drinks. Muriate of soda is proved, by the experiments of Orfila, to counteract the effects of the salt, and hence is its antidote.

Nitrate of Bismuth. The same general treatment as in the case of other corrosive poisons, with milk and mucilaginous drinks plentifully administered.

The Salts of Lead, when taken in large quantities, produce poisonous effects, and when gradually introduced into the system, they produce a peculiar species of colic, which has been already treated of. When taken in an over-dose, the proper treatment is to endeavour as speedily as possible to empty the stomach by the ordinary means. The sulphate of soda or of magnesia is the most effectual antidote for lead; it should be given in strong solution; at the same time, mucilaginous drinks and purgatives are to be administered. Inflammation is to be prevented by bleeding.

Sulphuric Acid. Taken in an undiluted state, or in large quantities, it produces all the symptoms attendant upon violent inflammation of the throat,

gullet and stomach, or when concentrated, it may destroy at once the lining membrane of those parts.

Large quantities of water, containing calcined magnesia in suspension, must be instantly administered; or, if not at hand, soap and water, chalk and water, or lime-water. The caustic must be neutralized, or the patient is inevitably lost. The subsequent treatment will depend upon the degree of inflammation present. Demulcents, barley-water, gum-water, whey, milk diet and emollient injections will always be proper.

Nitric Acid. When taken in excess, the treatment is the same as in the case of the foregoing.

The Alkalies. For these, when taken in excess, vinegar and lemon-juice are the most valuable remedies; they are to be aided by the plentiful use of mucilaginous drinks and emollient injections. The remaining treatment will depend upon the degree of inflammation.

Barytes. All the salts of this earth, excepting the sulphate, are poisonous in certain doses. When taken, vomiting is to be excited, and the plentiful use of a solution of sulphate of soda or magnesia commenced with early.—These decompose the poison and produce the insoluble sulphate, which of course is inert. The treatment for the secondary stage is to prevent or subdue inflammation.

Nitrate of Potash, when taken in excess, is a poison producing inflammation of the stomach, &c. Treatment, vomiting, mucilaginous drinks, and bleeding, according to circumstances.

Muriate of Ammonia. The treatment is the same as that directed in the last case.

Acrid Vegetable Poisons. The treatment for poisoning from these is, 1st. To dislodge the article from the stomach as speedily as possible, by vomiting. 2d. To administer large quantities of mucilaginous drinks, emollient injections, &c. 3d. To prevent inflammation by the antiphlogistic

reme lies generally. 4th. To overcome violent irritation and spasm of the stomach and bowels by opium.

Narcotic Poisons—Opium. When opium or any of its preparations are taken in a large quantity, so as to act as a poison, the following symptoms are usually perceived within a short period: insensibility and incapacity of exercising muscular motion; respiration scarcely perceptible, and a small and feeble pulse, which usually becomes full and slow. As the effects of the poison increase, the state of lethargy becomes more complete; deglutition is suspended; the breathing is occasionally stertorous; the pupils are insensible to the application of light; the countenance is livid or pale and cadaverous, and the muscles of the limbs and trunk are in a state of relaxation; vomiting sometimes supervenes; death is often preceded by convulsions. In cases of recovery, a weakness will sometimes be left in the lower extremities, nearly approaching to paralysis, and the bladder will be unable to retain its contents.

The following are the directions of Orfila for treating a case of poisoning from opium.

1st. Induce vomiting, if possible, with sulphate of zinc, sulphate of copper, or tartarized antimony. In endeavouring to induce vomiting, great quantities of watery fluids will be improper, as they dissolve the opium and promote its absorption. The vomiting should, therefore, be accomplished without the administration of any more liquid than is necessary to dissolve the emetic.

The operation of the emetic may be accelerated by tickling the fauces with the finger, a feather, &c., but as one of the effects of this poison upon the stomach is to render the latter insensible to the impression of emetics, much time should not be lost in vainly waiting until they shall operate, when by the aid of the gum elastic tube and syringe, the contents of the stomach may be pumped out and fluids afterwards injected, so as entirely to wash

out every portion of the poison. The patient should not be allowed to remain quiet in one position, but should be moved about between two assistants stinging with nettles, or even the application of a cowskin has been proposed, and put in practice, under these circumstances, with good effect.

Sinapisms on the extremities should never be neglected. The affusion of cold water is also a remedy of considerable efficacy in reusing the system from the state of stupor in which it is thrown by the effects of narcotic poisons, particularly the one under consideration; large pitchers or buckets of the water should be splashed from a height over the head and shoulders of the patient, or over his whole body, and persevered in until the patient indicates a return to a state of animation.

2d. The second rule of Orfila is to bleed the patient immediately after the evacuation of the opium, and repeat the operation if necessary.

3d. Administer now, alternately water acidulated with any vegetable acid, and a strong warm infusion of coffee. The experiments of Orfila have shown that the exhibition of vegetable acids previously to the evacuation of the opium, is highly improper, as they accelerate and aggravate the action of the poison; after, however, the latter has been entirely discharged from the stomach, water acidulated with vinegar, lemon-juice, or other vegetable acid, tends to diminish and correct its effects upon the system, to which, also, the infusion or decoction of coffee is admirably adapted.

4th. In about ten or twelve hours, administer an injection, and let the arms and legs of the patient be well rubbed with the flesh-brush, soft coarse flannel or some stimulating application. Dr. Beck states that he has known the most happy results at this particular juncture, and during the latter comatose stage, from repeated injections of a strong watery solution of assafœtida. So long as any of the opium is suspected to be retained in the intestines purgative clysters should be continued.

The residue of the narcotic poisons, when taken in sufficient quantities to produce deleterious effects upon the system, are to be treated on the same general principles.

DIABETES.

Diabetes is a disease accompanied with a considerable discharge of urine, for the most part excessive in quantity, of a violet smell and sweet taste, and attended with great thirst and general symptoms of debility.

Diabetes often makes its approach insidiously, and may arise to a considerable degree, and exist for some weeks, without being particularly attended to. It is accompanied mostly with a very voracious appetite; an insatiable thirst; a dry, harsh skin; a clammy tongue; a sense of weight, or even acute pains in the loins; and frequently with a hay-like scent or odour issuing from the body. The kidneys discharge a fluid usually very limpid and large in quantity, though sometimes tinged with green, like a diluted mixture of honey and water, and possessing a sweet taste, more or less powerful; the pulse is quicker than in health; the flesh wastes rapidly; and, in a very advanced stage of the disease, the feet and legs swell, and the skin becomes cold and damp. A troublesome costiveness frequently attends, and sometimes symptoms of an affection of the lungs.

The quantity of urine evacuated by diabetic patients is generally profuse, and, in some instances, has amounted to the astonishing quantity of sixteen or twenty quarts in twenty-four hours.

This disease is occasionally to be met with in early life, but generally occurs at a more advanced period, especially in constitutions broken down by intemperance. The predisposing and exciting causes are chiefly such as produce derangement of the digestive organs and debilitate the general system, as the abuse of spirituous liquors, cold applied to the body, immoderate evacuations, crude unwholesome diet, and the excessive use of mercury.

Medical men differ respecting the immediate cause of diabetes, but the most general opinion is, that it is dependent upon a morbid action of the stomach and other digestive organs, which necessarily, therefore, constitute its real seat.

The distinguishing sign of diabetes is, the presence of sugar in the urine.

The most successful plan of treatment hitherto discovered for this disease, consists in a strict adherence to a diet of light, easily digested animal food, to the almost total exclusion of every kind of vegetable matter, together with the use of tonic, astringent, and narcotic medicines, the most efficacious of which are, the mineral acids, particularly the nitric,—lime-water,—bark,—whortleberry powder,—preparations of steel, and opium. Blood-letting, also, is sometimes advisable. In this disease, the animal salts are deficient in the urine, while sugar is secreted in considerable quantity; and the remedies just detailed are calculated to produce an increased secretion of the former, and to counteract the formation of the latter, at the same time that they are adapted to correct the morbid action of the digestive organs, and to restore tone to the system generally.

The nitric acid is a medicine of great importance, as it is both tonic and astringent, and it has, in several cases of diabetes, been found to succeed in effecting a cure alone. It may be taken in the following manner: nitric acid, one drachm and a half; barley water, nine ounces; simple syrup, one ounce: mix, and take two table-spoonfuls, in the like quantity of water, three times a day, gradually increasing the dose to four table-spoonfuls.

The late Dr. Ferriar, of Manchester recommends a combination of bark, whortleberry leaves, and opium, after having himself prescribed it with success, and it is no doubt a useful formula: the proportions are as follow; yellow bark, in powder, whortleberry leaves, in powder, of each one scruple; opium, in powder, half a grain mix. To be taken four times a day

in a glass of lime-water. He recommends lime-water, at the same time, or the common beverage.

Opium is, in many instances, eminently serviceable in diabetes, and has been most advantageously employed in large doses. It can not be trusted to alone for effecting a cure, but will often prove a valuable auxiliary to the other means employed to overcome the existing irritation. The purified opium may be administered in doses of from one to three grains, three times a day, either alone or in conjunction with the nitric acid, lime-water, bark, or any other tonic.

Whatever medicine is resorted to, daily friction over the region of the kidneys, with camphorated liniment, should be persevered in at the same time; and in obstinate cases, it will be advisable to try the effect of an issue made at that part.

Blood-letting has been strongly recommended in this disease by Dr. Watt, of Glasgow, and is countenanced by many able professional men. But it is not applicable to those cases which are the result of advanced years, and which occur in a debilitated constitution. But, where the constitution still retains considerable vigour, if the disease is attended with any permanent or acute pain, considerable heat of the surface, or a hard, active pulse, a cautious use of the lancet will unquestionably be found useful. It was Dr. Watt's plan to bleed to the extent of fourteen or sixteen ounces, two or three times a week, till he had made an evident impression on the complaint; the extent and repetition of the bleeding must be determined, however, by the circumstances of each case.

After the patient has recovered from an attack of diabetes, the general rules laid down, in regard to diet and regimen, under the head of *dyspepsia*, should be cautiously observed by him; with this exception, that in place of vegetable food, a light, plainly cooked diet of wholesome animal food should be allowed him.

BLOODY URINE.

Voiding blood along with the urine may be occasioned by external violence, as blows or bruises; or it may be the consequence of violent exercise, as in riding or jumping; or it may be occasioned by the irritation of a stone in the kidney or bladder; it may also take place without any cause that we are able to ascertain. In some cases, the quantity of blood voided is very large indeed, and the debility induced is of the most alarming kind. In the treatment of the disease, we are to be guided by the cause by which it has been produced. When it is occasioned by external violence, we are to diminish inflammatory symptoms by general or topical bleedings, by giving mild purgatives, and directing the patient to drink largely of diluent liquors, to which a little nitre may be added, in order to dilute the contents of the bladder. If the symptoms lead us to believe that stone or a gravelly complaint is the cause of the disease, the primary affection must be attended to, for the treatment of which, see *stone and gravel*. The spontaneous voiding of blood is to be checked by the application of cold to the region of the bladder, and even by injecting cold water into the rectum. Small doses of opium may be given to allay irritation; and acids are to be employed with a view to their refrigerent effect. When blood is discharged by urine, mixed with purulent matter, twenty grains of the powder of the whortleberry may be given three times a day.

INCONTINENCE OF URINE.

Incontinence of urine signifies the flowing out of the urine without the patient being able to prevent it. This may arise from weakness induced by various causes, as old age, palsy, the abuse of acidulous mineral waters, hysterical and epileptic paroxysms, injuries of the head, and comatose diseases. When it arises merely from relaxation of the bladder, the cure is to

be attempted by tonics given internally, and by cold applications to the parts. In such cases the tincture of cantharides may be given, in the dose at first of ten drops, twice a day, gradually increasing it, till some pain is felt at the neck of the bladder. A blister applied to the perineum, or to the lower part of the back, is often very serviceable.

Incontinence of urine may also arise from irritation of the bladder, as when it is produced by a stone in the bladder, by the pressure of the child's head in the latter months of pregnancy, or by an increased hardness and enlargement of the prostate gland. The removal of this diseased state must depend on its causes. When it arises from pregnancy, it will go off upon delivery; but when from a stone in the bladder, nothing will do good but the extraction of the stone. In scirrhus of the prostate gland, the cure is probably impossible. Relief may occasionally be obtained from the use of mucilaginous drinks, opiates, or other narcotics, as hemlock, especially when given in clyster. When no relief can be obtained, contrivances must be resorted to, to prevent the constant discharge of urine, and to protect the neighbouring parts from being excoriated from its contact.

RETENTION OF URINE.

There are two different states of disease in which the urine is not passed as usual; either when it is not secreted by the kidneys; or when, although secreted by those organs, and conveyed into the bladder, it is not discharged from that cavity. It is this last affection that is denominated *retention of urine*. The distinguishing symptom is a swelling at the lower part of the belly, occasioned by the distended bladder, and this accompanied by pain on pressure, fever, and deficiency of urine, either total or partial. Sometimes, the bladder may be distended, although there be a partial flow of urine, and without great care the practitioner may be deceived by this circum-

stance. If violent efforts at expulsion take place, some portions of urine may be discharged, and the patient may be supposed merely to labour under a strangury. By examination of the lower belly, and the introduction of the catheter, the disease may, however, almost always be ascertained. Retention of the urine may arise from palsy of the bladder, which is not an unusual occurrence in advanced life. Palsy of the bladder may be owing to a person acquiring the habit of not evacuating the bladder when nature prompts him to do so. Retention of urine occurs also in the malignant forms of typhus fever. It comes on sometimes gradually, with a degree of debility which hinders the patient from completely emptying the bladder, so that he still feels a desire to do so. The inconvenience increases; at length, the patient is unable to discharge any urine, and the bladder becomes distended, and rises above the pubes. In cases of retention, the urine is to be drawn off by the catheter, and when relief is given by this means, it is not unusual for the bladder to recover its tone; pretty speedily, when the complaint has come suddenly on, and more slowly, when it has been gradual in its progress. In addition to the regular emptying of the bladder by the catheter, we are to try the effect of cold applications to the parts, and of blisters to the sacrum. The urine may be retained, in some cases, from inflammation affecting the neck of the bladder. Here the symptoms are acute and urgent, and demand the employment of the antiphlogistic regimen; bleeding, general and local, clysters, emollient drinks and anodynes, with the regular introduction of the catheter; and if the urine can not be drawn off by it, we must puncture the bladder. For the method of doing this, we refer to books of surgery.

SUPPRESSION OF URINE.

Suppression of urine signifies, that the kidneys do not secrete the urine in the same quantities as formerly. The remedies adapted to this complaint

when it is an original one, are bleeding, diuretics, as cream of tartar, the sweet spirits of nitre, squill, the warm bath, &c. If the suppression of urine arises from fever or other complaint, our attention is to be directed to the primary disease, as well as to this particular symptom.

STRANGURY.

By strangury is meant a frequent desire of making water, attended with much difficulty and pain in voiding it. It arises from various causes, as an inflammation of the urethra, of the neck of the bladder, or of other neighbouring parts; the application of a blister when the matter of the cantharides is taken into the body; the internal use of cantharides in powder or in tincture; excess in drinking vinous or spirituous liquors, or from gravelly particles in the passage. It is sometimes a symptom of gout, and very often arises from disease of the prostate gland. When strangury is owing to the application of a blister, the patient should drink plentifully of diluent liquors, as barley-water or thin gruel, to which a little nitre or other diuretic medicine may be added. In severe cases, fomentations to the urethra and neighbouring parts may be required; and it will be proper to use clysters to evacuate the bowels, as the accumulation of feculent matter will increase the strangury, from whatever cause it originates. If the strangury is an attendant on inflammation, it must be treated by local blood-letting, by leeches, by cooling purgatives, by fomentations, the warm bath, &c.; and if from spasm, an opiate by the mouth or by clyster will be proper. If the strangury proceeds from organic disease of the bladder, prostate gland, &c. it will be the business of the surgeon to ascertain the seat and nature of the disease, and to apply the proper remedies for its removal or amelioration: while care must be taken not to increase it by the use of improper drinks or articles of diet, as wines, or ardent

spirits, rich meats, acrid vegetables, salts, aromatics, or the like.

DYSURIA.

Dysuria is a pain or difficulty in passing urine. This may arise from various causes, and requires to be treated accordingly. If from inflammation of the neck of the bladder or urethra, this is to be removed by local bleeding, by purging, and the other remedies proper in such cases; if from spasm, this is to be relieved by opium, the warm bath, and other antispasmodics; if from stone in the bladder, this is to be primarily attended to. Dysuria is often very troublesome to children. The pain appears to be very great, as they shriek long and violently, and seem ready to go into fits, but on getting the urine passed, they instantly become quiet. The prejudices of nurses are in favour of giving gin on such occasions, which invariably proves injurious; often increasing the pain and difficulty of urinating, and producing other diseases of a still more serious character. A little very thin gruel, with a few grains of the carbonate of potash, and a drachm of the spirit of sweet nitre, may be taken. The bowels are to be kept open by manna or castor oil; and in the paroxysms of pain, the child is to be put into the warm bath up to the waist, or to have fomentations and gentle friction applied to the lower part of the belly.

DISEASES OF MENSTRUATION.

Though the general period of the commencement of menstruation is in this climate about fourteen years of age, it may nevertheless, from particular circumstances, and in certain constitutions, not make its appearance for some time after that period. Provided the health does not suffer, there is in reality no occasion for alarm or anxiety, although its occurrence should be later by a year or two in one girl than in another, but it is difficult to persuade women themselves of th

fact; and they are apt to ascribe every illness or uneasy feeling which girls may happen to experience towards the period of puberty, to the non-appearance of this discharge. It sometimes indeed happens, that very great sickness and loss of health do occur in young women who are long of menstruating; and in the article green sickness, we shall detail the symptoms and treatment of persons in that situation. The non-appearance of the menses also gives rise occasionally to cough and various other sympathetic affections; so that both the patient herself and her friends and medical attendants, are always very glad when the womb assumes its healthy action; and they also, very properly, look forward to the establishment of menstruation, as affording hope of relief from many ailments that afflict females about the age at which it generally commences. Every means, therefore, that is consistent with prudence and propriety, ought to be used to bring on healthy menstruation, when it seems too long delayed. Of these, the best are such as contribute to the general health and vigour of the system, such as a mild, nourishing diet; the tepid or warm bath; gentle exercise, either on horseback, or on foot, &c. The bowels are to be particularly attended to; and purgatives are sometimes, by sympathy, very effectual in bringing the uterus into action; of these, none are more beneficial than aloes, and the various pills of which aloes forms a principal ingredient. Symptoms must be palliated as they arise. The cough is to be treated by squill, by bleeding, or a blister; we are to discriminate as accurately as we can between the cough depending upon simple irritation, to which young females are particularly liable, and that which indicates the approach of consumption; and take our measures accordingly, so as not to neglect the incipient stage of a most serious disease, or to give too much importance to a state of things, which, if properly managed, is attended with very little danger.

When the menses do begin, it may be a year or two before they go on in a proper manner; the interval may be two, three, or four months, the quantity variable; and this, for some time, may comport with good health, and at last, the regular monthly period may be established. Matrons should pay particular attention to the conduct and management of their young friends at this period. Any impropriety in diet or regimen, which, at another time, might have passed with impunity, will now be productive of serious consequences, and may lay the foundation of ill health, and give a shock to the constitution from which it will not recover. Wet feet are to be considered as peculiarly dangerous: sometimes they check the discharge altogether, sometimes they give rise to a copious and debilitating flow.

Suppression of the menses. Independent of pregnancy, the menses may be checked or suppressed after their first establishment, by various causes. The most frequent causes of this obstruction are cold, passions of the mind, or diseases. We are to endeavour to bring the discharge back by remedies adapted to the particular circumstances of each case, by warm fomentations, purgative medicines, bleeding, opiates, or tonics; varying our plan according to circumstances, and using means more especially about the time when we may expect the efforts of nature to co-operate with our endeavours. The effects produced by suppression on the constitution are various; in many cases it may give rise to fullness of blood; and relief is then only to be obtained by bleeding, low diet, bathing the feet in warm water, and moderate doses of sulphate of magnesia, or Epsom salt. When accompanied with great debility, we must follow the same plan in obstruction, as we do in the non-appearance of the menses.

Immoderate flow of the menses. A too copious discharge of blood from the womb, is a frequent complaint. It may continue for a much greater number

of days than it ought to do, or its quantity may be excessive. This is a state of menstruation very difficult to cure, and productive of very debilitating effects on the body. The countenance of the woman becomes pale and haggard; there is a dark circle round the eyes, an aversion to motion, and great susceptibility to fatigue on slight exertion. The stomach is out of order, the bowels are slow, the lymphatic system is torpid, and symptoms of threatening dropsy appear. We are to order the patient to observe the utmost quietness; to keep in the horizontal posture; we must give gentle laxatives, in order to prevent all straining at stool; and direct some mild astringent medicine, as the infusion of rose-leaves with a little sulphuric acid, or the elixir of vitriol. If there be much heat and strength of pulse, we judge that there is too great a determination of blood to the uterine system, and we shall give great relief by using the lancet, together with leeches over the region of the womb, followed by the application of cloths wrung out of cold water; and in these cases, great benefit will also be derived from injections of cold water into the vagina and into the rectum. The diet should be extremely light and spare; the drinks should be toast-water, barley-water, or lemonade, taken cold; and the patient must remain at perfect rest in a recumbent posture, with the hips considerably elevated. After the more active symptoms have by these means been reduced, benefit will be derived from administering every three hours a pill composed of sugar of lead, three grains; ipecacuanha, one grain; and opium one fourth of a grain. When one period of too copious a discharge is got over, our care should be to prevent the next from being equally profuse. This is to be done by avoiding fatigue in the interval, by moderation in diet, by avoiding costiveness, by losing a little blood from the arm if there be too great fullness or inflammatory tendency in the system, and by a prudent use of sulphuric acid and other

astringents, as alum whey. A drachm of alum will curdle a pint of milk; a few ounces of the whey sweetened, to render it palatable, may be taken as often as the stomach will bear it.

Difficult or painful menstruation.

A state of menstruation different from the former, consists in a very difficult and painful performance of that function. It is to be treated by fomentations to the belly, back, and loins; by giving opiates during the severity of the pain, by avoiding cold; by giving medicines which promote perspiration, and encouraging their operation, by giving diluent drinks, and keeping in bed.

In some cases, instead of a fluid discharge every month, there is formed a membranous substance, which is expelled with great pain, and which, when carelessly looked at, has the appearance of an abortion. It is of great consequence for practitioners to know this, as an innocent and virtuous person might be suspected unjustly. When the uterus has put on this irregular action, it is believed that the woman can not conceive; but there are some cases that show this not to hold true universally. A great variety of medicines have been tried for the cure of this affection, but none are to be depended upon. If curable at all, it is generally by the efforts of the constitution itself. Medicines are to be given to palliate pain, debility, costiveness, or any other urgent symptom.

According to our experience, painful menstruation occurs most commonly either in very robust, athletic females, when it is best remedied by bleeding at the period of its occurrence, by a moderate well regulated diet in the intervals, and the occasional use of saline purgatives; or it occurs, on the contrary, in those who lead indolent and luxurious lives, when the proper remedies will be regular active exercise in the open air, the warm bath, and frictions of the surface, and the other means recommended under the head of dyspepsia.

Cessation of the menses. The time

of life at which this discharge ceases, differs in different women, but it usually does so between the age of forty-two and forty-six. The symptoms which occur at the period of cessation, also vary much; in some, the discharge stops at once, without any disorder of the constitution; in others, it returns after uncertain and irregular intervals, and in variable quantity, for months or years, before it finally stops. Though many women, at this period, have a great variety of ailments, these are rather to be considered as indications of a change occurring in the constitution, than as depending altogether on the diminution or absence of the discharge. They who have not enjoyed regular good health, they who have not borne children, or who have been weakened by frequent miscarriages, generally suffer most at this period of life. To others, again, who, during that part of their lives when menstruation went on regularly, had much pain, or were troubled with nervous disorders, the cessation of the discharge is an era which brings them better health than they ever enjoyed before. If no bad symptom occur at this time, there is no call for any interference by regimen, by evacuations, or in any other way; but if there be symptoms of fullness, or tendency to feverish complaints; if there be headache, flushings of the face, or of the palms of the hands, with restlessness in the night, pains in the loins or belly, or eruptions on different parts of the body; such fullness must be brought down by spare living, proper exercise, laxative medicines, and occasional blood-letting, taking care not to create a habit of using this last evacuation.

GREEN SICKNESS.

Chlorosis, or green sickness, is a complaint which occurs chiefly in girls about the age of fourteen years, and is characterized by a pale, blanched complexion, languor, listlessness, depraved appetite and indigestion, and the non-appearance of the monthly discharge. It is called green sickness from the

pale, livid, and greenish cast of the skin, so commonly present.

The symptoms consist chiefly in a general sense of oppression, languor, and indigestion. The languor extends over the whole system, and affects the mind as well as the body; and hence, while the appetite is feeble and capricious, and shows a desire for the most unaccountable and innutrient substances, as lime, chalk, &c., the mind is capricious and variable, often pleased with trifles, and incapable of fixing on any serious pursuit. The heat of the skin is diffused irregularly, and is almost always below the point of health; there is, consequently, great general inactivity of the circulation, and particularly in the small vessels and extreme parts of the body. The pulse is quick but low, the breathing hurried or laborious, the sleep disturbed, the face cold, the nostrils dry, the bowels irregular or confined, and the urine colourless. There is also, sometimes, an irritable and distressing cough; and the patient is thought to be on the verge of consumption, or perhaps to be running rapidly through its stages. Consumption, however, does not commonly follow, nor is the disease found fatal, although it should continue, as it has done not unfrequently, for some years.

The principal cause of chlorosis is indigestion occurring at the age of puberty, combined with a want of energy in the minute vessels of the womb, that prevents them from fulfilling their office. Constitutional weakness and relaxation frequently dispose to green sickness; and whatever enervates the general habit, or the stomach in particular, such as indulgence in heated rooms and late hours, long residence in crowded cities, want of exercise, impure air, a luxurious mode of life, stimulating, insufficient, or innutritious diet, and constipation, may be ranked among its causes.

The object of treatment in this disease is, to restore the functions of the stomach, bowels, skin, and other organs to their healthy condition, by daily

active exercise, pure air, a well regulated diet, and cheerful society, aided by the warm bath, frictions of the surface, alteratives and aperients.

The patient should take daily exercise in the open air, particularly on horseback, resorting to change of air and scene as often as circumstances will permit. She should make use of light nutritive food of easy digestion, and abandon the use of tea, coffee and all stimulating drinks. To rise from bed and to retire to rest at an early hour, morning and evening, are all important measures in this disease. In fact, the rules to be observed with respect to diet and regimen, are precisely the same as those which were laid down under dyspepsia. The regular state of the bowels should be solicited by occasional doses of the compound rhubarb pill or common aloetic pill, or when obstinate costiveness prevails, a dose of the compound colocynth pill will be proper. A warm bath twice or thrice a week, and active friction twice a day, with a flesh-brush, over the region of the stomach and bowels, are on no account to be neglected. The friction should be performed by the patient herself, at least night and morning, for fifteen minutes at each time.

When the acidity of the stomach is very distressing to the patient, a teaspoonful of calcined magnesia, or a mixture of equal parts of magnesia and rhubarb, may be taken.

Electricity, in the form of sparks drawn from the lower belly, or of slight shocks passed through it, may be resorted to in obstinate cases, and will frequently be attended with advantage.

It now and then happens, that retention of the menses occurs in florid, full-bosomed girls, who have no mean share of general vigour, in which case the pulse is full and tense, and the pains in the head and loins very severe. The ordinary cause of the retention in these cases, is exposure to cold at the period of the menstrual discharge; and the plethoric condition of the patient will bear and require, at the commence-

ment, the use of the lancet and saline purgatives. The warm bath should also be steadily used with a plain, light diet, and regular exercise.

THE WHITES.

This complaint consists in a discharge of a yellowish, white or greenish fluid from the womb and its passage. In the mildest cases, the discharge is mostly of a whitish colour, sometimes almost colourless, small in quantity, and unaccompanied with any soreness or uneasiness in the parts; but in the more aggravated forms, it is yellow, greenish, or dark coloured, thin, sometimes very acrid, and highly offensive, and occasioning itching, smarting, and other local symptoms of a very distressing nature. In most cases, there is pain and weakness in the back, and a sense of general languor; and when the disease is severe, and of long standing, it is generally associated with an unhealthy countenance, loss of appetite, disordered stomach, general debility, and a dry, hot skin.

It occurs most frequently in women of delicate constitutions, or in those whose health has been greatly impaired by profuse evacuations, improper diet, sedentary living, grief, intemperance, or other causes of exhaustion. It sometimes, however, arises chiefly from injuries inflicted upon the parts themselves, in consequence of difficult labours, frequent miscarriages, a dissolute life, or other causes. Women of all ages are subject to it.

The cure is generally difficult and tedious, and we are often obliged to try many remedies, before one can be found to afford much relief. When a cure of this disease is practicable, we, for the most part, arrive at it only by slow degrees.

Generally speaking, the principal object to be aimed at, with a view to a removal of this disgusting and debilitating malady, is, to give firmness to the general habit, and remove irritability from the womb and its passage. If the case be not of long standing, a mild diet, an occasional dose of castor oil

frequent injections into the vagina of warm water, followed twice a day by an injection of ten grains of sugar of lead, dissolved in four ounces of water, will be sufficient to effect a cure. If the case is of longer standing, and the constitution debilitated, the patient may take twenty or thirty drops of diluted nitric acid, in an ounce and a half of infusion of quassia, three times a day; keeping the bowels regular, by an occasional use of some mild laxative; and using much gentle exercise in the open air, daily, but short of any particular fatigue; observing at the same time, the nourishing but mild diet advised in dyspepsia. At the same time, an injection of an infusion of green tea, a strong decoction of pomegranate bark, or the acetate of zinc, may be thrown up the passage twice a day; and the tepid bath may be used twice or thrice a week. A blister should be applied to the *sacrum*, or broad bone at the bottom of the spine, and occasionally repeated. Whatever the general plan of treatment may be, cups and blisters to the *sacrum* are almost always applicable, and more or less serviceable. Should the quassia, as just described, not answer the wishes of the patient, she may change it for an infusion of simarouba bark, which has been strongly recommended by some professional men. In robust habits, however, when there is much local pain and heat, and the pulse is quick and hard, bleeding from the arm, a low farinaceous diet, and saline purgatives, should always precede the use of either of the above draughts.

The *uva ursi*, in the dose of a drachm three times a day, has been strongly recommended in this disease.

Preparations of steel or zinc are sometimes useful, when the patient is debilitated, and the case has been of long standing. The muriated tincture of iron is an excellent form of taking steel in this malady. The dose is from twenty to fifty drops, twice daily, in water.

The balsam copaiba will sometimes be a useful auxiliary to the preceding

means. It appears to be often useful when the whites follow the final cessation of the menstrual discharge, and are attended with a bearing down, and other painful symptoms in the parts.

Oil of turpentine, and tincture of Spanish fly, have likewise been sometimes serviceable; but the preceding remedies are, in general, far more safe and efficacious.

When the discharge is of an acrid nature, and of long standing, it will not be proper to attempt the suppression very quickly. In such a case, it will be advisable for the patient to take a purging draught, as the compound senna tea, occasionally, with an alterative pill, composed of blue mass, three grains; gum guaiacum, one grain; ipecacuanha, one grain, and aloes, one grain; every second night for three or four weeks; and to use one of the astringent injections above noticed, reduced in strength by the addition of an equal quantity of water. These mild cooling measures are particularly eligible if the patient be of a full or gross habit, as a soluble state of the bowels is then found to afford very sensible relief, and prepares the way for the more effectual operation of other remedies. If, in a case of long standing, the patient be reduced in strength, and of a feeble habit, she may take also the tonic draught of nitric acid and infusion of quassia, once or twice a day. After the use of the opening medicine, for the time now specified, the patient should have recourse to the balsam of copaiba, preparations of steel, or the other means previously advised.

When the pain and irritation are considerable in this disorder, and these symptoms are not relieved by the foregoing measures, a pill composed of half a grain of opium, and a grain of calomel, will frequently give great ease. If necessary, it may be repeated every night, instead of the pill already directed; or, instead of this pill, the compound powder of ipecacuanha may be taken, in doses of three or four

grains, and sometimes will be of the greatest use, in mitigating the severity of those symptoms.

In some cases, which occur in debilitated persons, the application of a warming plaster to the loins will be useful; or, when the discharge appears to depend on local relaxation, cold water may be pumped on that part every morning.

In the majority of instances, the diet should be very light, and in all it must be easy of digestion, and moderate in quantity. It is of much consequence, the patient should never forget, that a principal object in the treatment of her case is, to restore firmness and health to the whole frame, by perseverance in the use of suitable diet, exercise and change of air, in conjunction with internal medicines, and local applications. When the constitution is much disordered, it is in vain to endeavour to restore it to health by the employment of strengthening medicines alone; the diet and regimen must be strictly attended to at the same time, and it is too often from a neglect of these means that women fail to gain much relief in the present disorder. Throughout the complaint, the utmost attention must be paid to keep the affected parts strictly clean; frequent injections of tepid water will be necessary for this purpose.

FALLING DOWN OF THE WOMB.

The prolapsus or falling down of the womb, takes place in various degrees. The slightest degree, or first stage, has been called a relaxation; a greater degree, a prolapsus; and the protrusion from the external parts, a procidentia. It is necessary to attend carefully to this disease, to ascertain its existence; as it may, if neglected, occasion bad health, and many uneasy sensations. The symptoms, at first, are ambiguous, and may proceed from other causes. The woman feels a weight and uneasiness about the lower part of the abdomen, with an irritation about the urethra and bladder; and sometimes a tenderness in the course

of the former. A dull, dragging pain, is felt at the groins, and this is increased by walking, but goes off after resting, or lying in bed. Pains are also felt in the thighs, and very frequently the back aches.

In the greatest degree, or procidentia, the uterus is forced altogether out of the body, inverting completely the vagina, and forming a large tumour betwixt the thighs. The procidentia is attended with the usual symptoms of prolapsus, and also with a difficulty in voiding the urine, tenesmus, and pain in the tumour. If the womb be long or frequently down, the skin of the vagina becomes hard, like the common integument. Sometimes the tumour inflames, and indurates; and then ulceration, or sloughing, takes place. Procidentia of the womb may occur in consequence of neglecting the first stage of the disease, and the uterus is forced externally, with bearing-down pains: or it may take place all at once, in consequence of exertion, or of getting up too soon after delivery. It may also occur during pregnancy, and even during parturition. Sometimes it is complicated with stone in the bladder, or with polypus in the uterus.

Frequent parturition, the whites, and whatever tends to weaken or relax the parts, may occasion prolapsus. Sometimes a fall brings it on. When symptoms indicating prolapsus manifest themselves, we ought to examine the state of the womb. If it be found considerably lower down than it ought to be, then we must have recourse to mechanical means for keeping it up. A piece of sponge introduced into the vagina, will have this effect, or we may use a pessary. Pessaries are made of wood, cork, or gum-elastic, of different shapes, some oval, some flat and circular, some like spindles, or the figure of eight, others globular. A bag of elastic gum, stuffed with hair, often makes a convenient pessary. Whatever be employed, it ought to be taken frequently out and cleared, and, at the same time, astringent.

jections may be thrown into the vagina.

If the procedentia be large, and have been of long duration, the reduction of the uterus may disorder the contents of the abdomen, producing both pain and sickness. In this case, we must enjoin strict rest in a horizontal posture. The belly should be fomented, and an anodyne administered. Sometimes it is necessary to take away a little blood; and we must always attend to the state of the bladder, so as to prevent an accumulation of urine. When the symptoms are abated, a pessary must be introduced, and the woman may rise.

If the tumour, from having been much irritated, or long protruded, be large, hard, inflamed, and perhaps ulcerated, it will be impossible to reduce it, until the swelling and inflammation are abated, by a recumbent posture, fomentations, cooling applications, laxatives, and, perhaps, even blood-letting. After some days, we may attempt the reduction, and will find it useful previously to empty the bladder. The reduction, in general, causes, for a time, uneasiness in the abdomen. If the womb cannot be reduced, and is much diseased, it has been proposed to extirpate the tumour. This has been done, it is true, with success, but it is extremely dangerous; for the bladder is apt to be tied by the ligature, which is put round the part; and as the intestines fall down above the uterus into the sac, formed by the inverted vagina, they also are apt to be cut or constricted.

If prolapsus be threatened, or has taken place after delivery, in consequence, for instance, of getting up too soon, we must replace the womb, and confine the woman to a horizontal posture, till it have regained its proper size and weight; and this diminution may be assisted, if dilatory, by gentle laxatives.

INVERSION OF THE WOMB.

Inversion of the womb implies that the inside is turned out, and in this

manner it has passed beyond the vagina. It may take place in different degrees. When complete, it protrudes out of the vagina, and exactly resembles the uterus after delivery, only the mouth is turned upwards, in place of downwards. When it is partial, the tumour is retained within the vagina, and the fundus only protrudes to a certain degree, forming a firm substance, something like a child's head. When the womb is inverted, the woman feels great pain, generally accompanied with a bearing-down effort, by which a partial inversion is sometimes rendered complete. The pain is obstinate and severe, the woman feels weak, her countenance is pale, pulse feeble, and often imperceptible, a discharge of blood very generally attends the accident, and often is most profuse. But it is worthy of notice, that complete inversion sometimes is not accompanied with loss of blood, whilst a very partial inversion may be attended with a fatal discharge. Fainting, and convulsions, are not unfrequent attendants.

Inversion may terminate in different ways. It may prove rapidly fatal by the loss of blood; or it may excite fatal syncope, or convulsions; or it may operate more slowly, by inducing inflammation or distention of the bladder; or, after severe pains and expulsive efforts, the patient may get the better of the immediate injury, the womb may diminish to its natural size, by slow degrees, and give little inconvenience; or it may discharge fetid matter, and give rise to frequent debilitating discharges of blood; or hectic comes on, and the patient sinks in a miserable manner.

If the inversion be discovered early, the womb may be replaced. If it have protruded out of the vagina, it is, first of all, to be returned within it; if it have not, we proceed directly to endeavour to return it, by cautiously grasping the tumour in the hand, and pushing it upwards. If we push directly, without compressing the tumour, we sometimes bring on violent bearing-

down pains. These are occasionally attended with an increase or renewal of the flooding. If we succeed, we should carry the hand into the womb, and keep it there for some time, to excite its contraction.

If the inversion has not been discovered early, it is more difficult, nay, sometimes impossible to reduce it, owing chiefly to contraction of its orifice. In such cases, it is not prudent to make very violent efforts, as these may excite convulsions. We must in every instance alleviate urgent symptoms, such as fainting, retention of urine, or inflammation, by suitable means.

When the womb can not be replaced, we should at least return it into the vagina. We must palliate symptoms, apply gentle astringent lotions, keep the patient easy and quiet, attend to the state of the bladder, support the strength, allay irritation by opiates, and the troublesome bearing down by a proper pessary. If inflammation come on, we must prescribe blood-letting, laxatives, &c. In this way, the womb is enabled by degrees to contract to its natural size, and the woman menstruates as usual, but generally her health is delicate.

POLYPI IN THE WOMB.

Polypi in the womb occur of various sizes and consistency; they are sometimes broad and flat at their base, sometimes they have a narrow neck. They occasion a discharge of blood at times; but when small, they are not productive of much inconvenience. But if they become large, they give rise to symptoms both troublesome and dangerous. There is violent bearing-down pain, discharges of blood, or of fetid dark-coloured matter from the vagina, pain or difficulty of making water, irritation of the rectum, and a frequent desire to go to stool. When very large, the polypus hangs out from the passage. If the disease be not relieved, the pains become more violent, the constitution is affected, and the conti-

nual discharge greatly weakens the patient.

As the patients themselves can not distinguish tumours from other diseases producing similar symptoms, their existence must be ascertained by the examination of a practitioner; and their removal effected by a surgical operation, either by the knife or by ligature, performed by a surgeon well acquainted with the structure and connexions of the parts. No internal remedies will do any good till the tumour is removed. When this is accomplished, the general health is to be improved by proper diet and tonic medicines.

CANCER OF THE WOMB.

Cancerous affections of the womb, when in a state of ulceration, constitute one of the most deplorable diseases which can afflict humanity. Cancer of the womb most generally attacks at the decline of life, though not exclusively so. At first, the patient has an uneasy feeling of weight at the lower part of the belly, with heat or itching. Afterwards, shooting pains occur; then a pain, giving a gnawing, burning sensation, seems fixed in the region of the womb. This pain is attended by the discharge of ill-coloured, sharp matter, which irritates and causes ulceration in the neighbouring parts. As the disease advances, almost every function of the body becomes disordered. Sickness and vomiting come on, the bowels are torpid and irregular, hectic fever and great emaciation ensue, and the spirits are dejected and desponding. Swellings of various glands, and dropsical swellings of the limbs not unfrequently occur. Similar symptoms as in the early stages of cancer, may arise from other complaints in the womb, as from polypous growths; the nature of the disease should therefore be, if possible, ascertained at an early period, that the one may be removed, and the other kept from rapid advancement and ulceration, so far as we are able. Cancer in the womb appears to begin with a thickening and hardness

of that organ; which we suspect, when there are pains in the thighs and back, a bearing down when the patient is using exercise, and occasional discharges of clotted blood. Our directions to the patient, in such cases, are to use a milk and vegetable diet, to abstain from animal food and distilled or fermented liquors, to lose a little blood occasionally, to take frequently a dose of laxative cooling salts, and to use the warm bath.

Of the nature of cancer of the womb, we are as ignorant as of cancer in any other part of the body; and when the disease is established, we are as destitute of any remedy. In the periods of deplorable suffering which terminate with the life of the patient, we can do little more than palliate symptoms; and the whole tribe of narcotic medicines have been brought into requisition on such occasions. Opium, belladonna, hemlock, and various others, have been tried, and failed. Mercury, in every shape, is absolutely pernicious in cancer.

The melancholy distress to which patients are reduced by cancer of the womb, disposes the minds both of themselves and their friends to listen with eagerness to the promises of relief, which ignorant and interested empirics so liberally make to them. But all such promises should be met with the most obstinate incredulity. The learned, the experienced, and the candid members of the medical profession declare, that, as yet, no drug has been found capable of curing cancer by acting on the constitution; and whoever suffers herself to be deluded by the boasts of those whose only aim it is to vend their nostrums, loses the time that might be better employed, and neglects those suggestions which might palliate, though, unfortunately, they can not cure her complaints.

RHEUMATISM.

Rheumatism is divided into two species, the *acute* and the *chronic*, which, as they differ, in some measure, in

their symptoms and treatment, will be treated of separately.

Acute Rheumatism. Acute rheumatism consists in pain, inflammation, and swelling, usually about the larger joints and surrounding muscles, which symptoms often wander from one part to another; the urine deposits a red sediment, and the accompanying fever is in general inflammatory.

Acute rheumatism usually commences with languor, chilliness, succeeded by heat, thirst, restlessness, and a quick pulse; there is also a sense of weight, coldness of the limbs, and confined bowels. In the course of a day or two, inflammation, with acute pain, tumour, and tension, makes its appearance in one or more of the larger joints of the body. The pain is frequently transitory, and apt to shift from joint to joint, leaving the part previously occupied, swollen, red, and extremely tender to the touch. The pulse now becomes full and hard; the blood, when drawn from a vein, is cupped, exhibiting the inflammatory surface; the tongue preserves a steady whiteness; the bowels are commonly very costive; the urine high-coloured; and often there is a profuse sweating, unattended by relief.

Sometimes, however, the pain is the first symptom, and the fever follows. When the pain is not very severe, and confined to a few parts, the fever is slight; when it is severe and felt in many parts, the fever is more considerable, and it is most so when the pains extend over the whole body. Both the pain and fever generally suffer an increase in the evening, and a remission towards morning. The pains are much increased on the slightest motion requiring the action of the muscles affected, and are most severe, as well as most apt to shift their place, in the night time. The fever abates sooner than the local symptoms, and is rarely protracted beyond a fortnight or three weeks. The pains, for the most part, are the last symptom which leaves the patient. They often begin to abate

about the eighth or tenth day, but frequently continue, with more or less severity, to the thirtieth or fortieth. Sometimes they continue for months or even years.

Cold or damp applied when the body is heated, is the most usual cause of rheumatism; and the young and vigorous, and those between the age of puberty and thirty-five, are most subject to it. It is more frequent in the beginning and towards the end of winter, than at any other season.

Persons who are full of blood are frequently attacked by it, and whatever occasions a sudden fullness of habit may be ranked among its exciting causes.

The only disease with which rheumatism is liable to be confounded is gout. Gout, however, is preceded by more evident symptoms of indigestion; comes on more suddenly; attacks the smaller joints; and has not so strongly marked an increase of the fever and other symptoms at night, as we witness in acute rheumatism.

The chief remedies in the inflammatory or acute rheumatism are, blood-letting; mild purgatives; diaphoretic or gentle sweating medicines; calomel, opium, and emetic tartar combined, and the wine of meadow saffron; and, if they are skilfully employed, these very generally procure a satisfactory termination of the disease in a moderate time. In the commencement, the fever is in general considerable, and sometimes violent, when the patient should be bled from the arm to the extent of from ten to sixteen ounces, which may be repeated every day to the second, third, or fourth time, according to the severity of the fever, and the age and strength of the patient. A mild purge, as a dose of Epsom salt, or the following draught: Epsom and Glauber's salt, of each two drachms; mint water, an ounce and a half; tartar emetic, two grains; tincture of senna, two drachms, should follow the bleeding, and may be continued every other morning until the bowels are fully evacuated; the follow-

ing medicine being given every three hours during the day: powdered nitre, one drachm; tartar emetic, two grains; calomel, twelve grains; for twelve powders.

Together with these remedies, a dose of Dover's powder may be given every night at bed-time. It relieves pain and inflammation, and sometimes has much influence in shortening the term of the disease.

In respect to general blood-letting, it ought to be observed, that it should not be employed for the purpose of relieving pain, when the general excitement does not warrant it. It is the activity of the heart and arteries alone which is to direct us in the use of the lancet; the abstraction of blood in acute rheumatism being always proportioned to the force and hardness of the pulse. It must also be regulated, in a great measure, by the age, strength, and habits of the patient; and his residence, whether in town or country, ought to be considered. If the patient be young and vigorous, two or three bleedings will generally be followed by much relief, if the first abstraction of blood is not found sufficient; and the repetition of the blood-letting will be still more necessary and useful when a free and luxurious mode of living is added to youth and strength. Patients who enjoy the advantages of a healthful country residence, will bear bleeding in this disease much better than those who inhabit populous cities, or marshy districts. In conjunction with general blood-letting, as well as in those cases in which bleeding from the arm is not deemed advisable, the free application of leeches to the part affected will be productive of the most decided relief.

After the disease has been treated in this way for a week or ten days, should the pains still continue severe, the wine of meadow saffron may be administered. This medicine is not applicable to the beginning of the complaint, but towards the decline it is frequently of much service in allaying pain and inflammation in the joints; but it must not be used very freely. Forty or fifty

drops of it may be taken in any agreeable vehicle, twice a day, when the pain is violent; or it may be taken in the following form: solution of acetate of ammonia, half an ounce; wine of meadow saffron, forty drops or half a drachm; syrup of poppies, a drachm; camphor mixture, an ounce; to be taken every six hours, while the pain requires it.

When the fever has been subdued by the foregoing means, and some days have elapsed from the first attack of the malady, the best course is, to give the opening medicine recommended above, three or four times a week, with a pill of one grain of calomel, a third of a grain of opium, and one sixth of a grain of emetic tartar, every night and morning.

As a local application to the swollen and inflamed joints, the simplest is the best, such as fomentations with lukewarm water, or, after the fever has abated, a mixture may be used of four ounces of spirit of wine, and eight ounces of camphor mixture. For any stiffness or chronic pains left in the joints after the disease has been removed, bathing the parts with lukewarm salt and water, and then rubbing them once a day with some stimulating liniment, will generally be the most effectual means of removing those symptoms. When convalescent, the patient should likewise resort to moderate exercise, both within doors and in the open air; and, as soon as his strength will permit, a walk of several miles, every other day, will be found of eminent service in restoring use to the limbs, and perfecting the recovery.

The diet ought to be very spare in the commencement; and throughout the disease, mild and diluting, consisting chiefly of milk whey, and the usual farinaceous decoctions, as, barley water, toast water, thin gruel, &c. As he becomes convalescent, he must gradually return to a more nourishing diet of eggs, bread, biscuit, &c., and finally, of the lighter species of animal food. The temperature of the patient's room should be as uniform as possible, and

of a moderate degree. Some think he should be laid in blankets, but this is, in general, improper.

Chronic Rheumatism. *Chronic* rheumatism differs from *acute*, in being attended with little or no fever or decided inflammation; the chief symptoms being pain and swelling in the larger joints, and in the course of certain muscles. The former is clearly the same disease as the latter, consisting in an inflammatory action of the tendons and ligaments, but of a less intense grade.

The chronic species becomes fixed most frequently in the loins, hip, knee, and ankles, but every large joint is liable to its attacks. The general heat of the body seldom exceeds the natural temperature, and the pulse is rarely quicker than eighty strokes in a minute; the joints are swollen, but not to so great a degree as in the acute species, being of a pale hue, cold and stiff, roused with difficulty to perspiration, and always comforted by the application of warmth.

The same causes give rise to this as to the acute species; and violent strains and spasms will cause chronic rheumatism, where the constitution is peculiarly disposed to the malady.

As we have just remarked, no difference exists between the two forms of the disease, excepting in the degree of inflammation by which they are produced, and the greater deviation of the parts affected in the chronic species, from their natural condition; it is evident, therefore, that the treatment will not differ much in the earlier stages of chronic rheumatism from that laid down for the acute variety. Bleeding from the arm, however, will seldom be required, but cups or leeches to the affected joints will often be proper and decidedly beneficial. The bowels, at the same time, should be kept free by the use of mild purgatives; any of those directed in gout may be employed. When the disease has been of long standing, and the patient much debilitated, the most efficacious remedies are those of a warm balsamic nature, and

which promote the insensible perspiration; such are guaiacum, turpentine, camphor, cajeput oil, mustard, and the compound ipecacuanha powder. Local stimulants are likewise often of great service, more especially the stimulus of galvanism and electricity.

In the whole catalogue of medicines recommended for the relief and cure of chronic rheumatism, there is none more appropriate and useful than Dover's powder; for it is eminently serviceable in relieving the pains, disposing to sleep, and keeping up a gentle and salutary discharge from the skin, which, of all others, is the evacuation affording most benefit in cases of this description. Four grains of this powder may be made into a pill, with a little extract of gentian, and given three or four times a day; about a quarter of a grain of aloes being added to each pill, to prevent costiveness. At the same time, the affected parts may be rubbed thrice a day, for a quarter of an hour, with one of the following liniments: water of ammonia, one ounce; olive oil, two ounces; or, an ounce and a half of the above, with the addition of half an ounce of spirits of turpentine; the painful joints being afterwards wrapped in flannel. If the pains are very severe, and the patient's general health appears deranged, a grain of calomel, two grains of the antimonial powder, and a grain of opium, may be made into a pill, with a little conserve, and taken every night at bed-time. This pill will sometimes be found of great value. In addition to these means, a tepid bath at ninety degrees should be used every other morning, for about half an hour or forty minutes; or a trial be given to the air-pump vapour bath, if within the patient's reach.

Next in efficacy to the Dover's powder, is the volatile or ammoniated tincture of guaiacum, which may be tried in doses of thirty, forty, or fifty drops, every four hours, dropped on sugar, or taken in milk and water. The liniment being applied locally, and the calomel pill taken at night with the warm bath occasionally, as just advised.

If these fail, the oil of turpentine may be taken internally, and is sometimes very useful. Half an ounce of this oil may be mixed with an equal quantity of sweet spirit of nitre; of which mixture a tea-spoonful, three times a day, in any agreeable vehicle, is the proper dose.

Should the complaint prove particularly obstinate, which is not uncommon, a trial may be made of the following pills, instead of those made with the Dover's powder alone: compound ipecacuanha powder, thirty-six grains; extract of hemlock, prepared in vacuo, one drachm; gum guaiacum, in powder, twenty-four grains; aloes, in powder, four grains; divide into twenty-four pills. Two or three to be taken three times a day.

Of course the liniments before recommended, with the calomel pill at night, and the warm bath, must not be neglected while taking these pills.

The arsenical solution is a medicine which has been highly recommended by Dr. Bardsley, of England, and others; but, from its activity, it ought not to be used till the foregoing remedies have failed of success. It is, in general, of no use in recent cases, and in young persons; but in the long standing attacks which occur in old subjects, it will sometimes perfectly succeed after every previous expedient has failed.

The meadow saffron has been much extolled of late years by some respectable practitioners. It is certainly much more applicable and safe in chronic rheumatism, than in the acute species, or in gout. If it be used moderately, and in conjunction with the other approved remedies here noticed, it will often be of much service; but if trusted to alone, and incautiously employed in large quantities, it can hardly fail to be injurious. In such large quantities, it will, undoubtedly, mitigate the patient's sufferings, but it will also irritate his stomach, and disturb his digestion. Thirty or forty drops of the wine of meadow saffron may be taken, twice a day, mixed with five grains of magnesia, and two ounces of water.

The local stimulants of most service in chronic rheumatism, are liniments composed of ammonia; as, water of ammonia, one ounce; olive oil, two ounces: or the foregoing with the addition of one ounce of spirits of turpentine; or the burning of moxa, and the application of electricity or galvanism. Whatever liniment is applied to the affected parts, it should be rubbed in frequently, and with active friction, by the patient himself. The friction can hardly be too long continued at one time, or too frequently resorted to, for it alone has wrought wonders in desperate cases. Dr. Balfour, of Edinburgh, has published a useful book on the good effects of friction and compression in rheumatism, in which he relates numerous examples of its efficacy in the worst cases. Admiral Henry, of England, was almost a cripple from a very protracted attack of chronic rheumatism, and he cured himself by the steady use of friction alone. Besides the hand, he employed small pieces of wood, rounded at the top, with which he used to rub and compress the stiff and painful parts. In severe and obstinate cases, the moxa may be tried, which has sometimes been very successful in removing stiffness and pain in inveterate forms of this malady.

Electricity, in the form of aura or sparks, or in slight shocks, is worthy of much confidence; and the same may be said of galvanism. The operation of galvanism is more soothing and agreeable to most persons than that of electricity, and, perhaps, is commonly more efficacious in this form of disease. It has, undoubtedly, effected great and salutary changes in cases of chronic rheumatism, and ought not to be neglected if the more common plans of treatment fail.

The vapour bath is also of eminent service in many cases. It may be used at about one hundred and ten degrees, once or twice a week. By promoting a free perspiration, it greatly relieves the internal parts.

The air-pump vapour bath has been

found of remarkable service in many extreme cases of chronic rheumatism, even when accompanied with stiffness and contraction of the joints and muscles, and often after the vapour bath, applied in the usual manner, had failed to produce any beneficial effects. The air-pump bath is a local application to the parts immediately affected, and combines the powers of the most effectual fomentations with those of dry cupping; so that by removing the weight of the atmosphere from the injured parts, and promoting a free perspiration at the same time, it relaxes the ligaments and muscles, imparts a freedom to the local circulation, and effectually assists nature in her efforts to change the diseased action, which is present, for one that is healthy. If the case requires it, it may be used alternately with galvanism; and these remedies, united, are, in some obstinate cases, much more efficacious than either of them when employed alone.

The tartar emetic ointment, rubbed near the seat of any fixed and severe rheumatic pain, will bring out a large crop of pustules, and sometimes affords essential and prompt relief.

Acupuncture has lately been recommended in this disease, and may be tried in severe cases, where the preceding remedies fail. It consists in making a small puncture in or near the part of the body affected, with a long needle. The puncture produces little or no pain, and when properly performed is followed by no bleeding. A single puncture is sometimes found sufficient to remove pain; and if it shoots to another part, this must be punctured in the same way as the original seat of the irritation. Now and then, acupuncture appears to have been followed by very striking advantages; but, it will occasionally fail to afford any relief, and in all cases the improvement of the general health must be attended to at the same time that it is employed.

The best remedies for that form of chronic rheumatism which is connected with a syphilitic affection, or accom-

panies the secondary symptoms of the venereal disease, are, a pint of the compound decoction of sarsaparilla, taken in divided doses during the day, with an alterative pill, every night, or every other night; either of the following may be employed: calomel, ten grains; emetic tartar, two grains; guaiacum, one scruple; to be made into ten pills with a little simple syrup; or, blue mass, half a drachm; ipecacuanha, five grains; soap, ten grains; extract of belladonna, three grains; to be made into ten pills. At the same time, we should recommend the warm bath at ninety-five degrees, thrice a week, country air, and a mild, nutritious diet.

In all cases of chronic rheumatism, the clothing should be warm, and the diet light and nutritious, but moderate in quantity, so that the stomach may never be overloaded. As an article of clothing for the rheumatic, an under waistcoat of chamois leather is, generally, of very great service, and sometimes proves of the most striking advantage. If the lower extremities of the body are much affected with the disease, drawers also, made of the same material, should be worn. This leather washes like linen, only it must not be washed in hot water. For the first day or two, it usually feels cold and uncomfortable, but soon becomes even more comfortable than flannel. It is proper to have several sets, and to change them frequently.

Before concluding this article, it is necessary to apprise the reader that we frequently meet in practice with flying or fixed chronic pains, attended by stiffness, which imitate rheumatic pains, but are owing to a disordered state of the stomach and bowels; indeed, some of these cases may be correctly called rheumatic. In such instances, the symptoms of indigestion will generally present themselves more or less clearly marked, and the most effectual remedies will be those pointed out when treating of that complaint, especially the alterative pill, directed above, every night, with a light bitter infusion and carbonate of soda, as fol-

lows: compound infusion of gentian, five ounces; carbonate of soda, two scruples: dose, two or three tablespoonfuls every three hours, in a tumbler of water, through the day; the bowels being kept regular by the following pills: aloes, ten grains; soap, ten grains; ipecacuanha, three grains; gamboge, ten grains, for ten pills, one for a dose; to be repeated every three hours. Another valuable plan in these particular instances is, to take half a pint of the compound decoction of sarsaparilla, twice a day, with five grains of blue pill and five of extract of hemlock, made into two pills, every night. If the pains are severe, the patient may increase the quantity of hemlock here ordered, and take ten grains of it, once or twice a day, with five grains of the blue pill in the whole, daily. Whatever medicine is resorted to, the diet and regimen laid down under dyspepsia must be attentively pursued; considerable exercise on foot or horseback being taken every day, with friction, early rising, &c.

Pains, resembling rheumatism, are likewise often the effect of a diseased condition of the spinal marrow; the most appropriate remedy for these is, cups applied along the back bone, followed by blisters to the same part; the bowels being at the same time kept in a laxative condition, by the occasional use of some mild purgative. The diet of the patient should be spare and cooling.

GOUT.

There is a very great difficulty in presenting a definition of gout, which shall be applicable alike to all its varying forms. In its common and most genuine character, it may be defined a disease, the predisposing to which is very frequently hereditary, marked by a violent pain, for the most part in the ball or first joint of the great toe, with redness, tumor and general febrile symptoms, returning at intervals; the attacks being preceded by evident symptoms of a deranged condition of the digestive functions, and when these

terminate, leaving the patient in his ordinary state of health. The local affection frequently alternating with disease of the stomach and other internal organs.

Gout may be divided into three varieties, the *acute*, the *chronic*, and the *retrocedent*.

Gout sometimes comes on very suddenly, particularly in its first attacks. In general, however, the inflammation of the joint is preceded by various symptoms, indicating a want of vigour in different parts of the body. The patient is incapable of his usual exertions, either of mind or body; becomes languid, listless, and subject to slight feverish attacks, especially in the evening. He complains of pains in the head, coldness of the feet and hands, impaired appetite, flatulency, heartburn, spasms of the stomach, and the usual symptoms of indigestion. He is oppressed with heaviness after meals, and a disturbed, unrefreshing sleep ensues. The bowels are seldom regular, being either constipated, or too much relaxed; the mind, at this period, being generally irritable, anxious, and alarmed at the least appearance of danger. A deficiency of perspiration in the feet also, with a distended state of their veins, cramps, and numbness of the feet and legs, and other strange sensations, often presage the approaching fit. The duration of these symptoms, previously to the fit occurring, is various; sometimes only a day or two, at other times, many weeks.

The fit sometimes makes its attack in the evening; more commonly, about two or three o'clock in the morning. The patient goes to bed free from pain, and is awakened about this time by a very acute pain, generally in the first joint of the great toe, the pain often resembling that of a dislocated bone, with a sensation as if hot water were poured on the part. It sometimes extends itself over all the bones of the toes and fore part of the foot, resembling the pain occasioned by the tension or laceration of a membrane. Cold shivering is felt at the commencement

of the pain, which is succeeded by heat and other symptoms of fever. The pain and fever increase, with much restlessness, till about the middle of the succeeding night; after which they gradually abate, and in the most favourable cases, there is little either of pain or fever for twenty-four hours subsequently, at least in the early period of the disease. The patient, as soon as he obtains some relief from his pain, generally falls asleep, a gentle sweat comes on, and the part which the pain occupied, becomes red and swelled. In most cases, however, the pain and fever return on the succeeding night with less violence, and continue to do so for several nights, becoming less severe till they cease.

Such is a simple fit of *acute* gout. But it often happens, that after the pain has abated in one foot, it attacks the other, where it runs the same course; and in those who have laboured under repeated attacks of the disease, the foot first attacked is often seized a second time, as the pain in the other subsides, which is again attacked in its turn, and they are thus alternately affected for a considerable length of time. In other cases, it seizes on both feet at the same time. After frequent returns, it begins to seize upon the joints of the hand, and at length the larger joints. When the gouty tendency is very great almost every joint of the body suffers; the pain, when it leaves one, immediately fixing in another.

In persons of a robust constitution, the whole fit is generally finished in about fourteen days. In the aged, and those who have been long subject to the gout, it generally lasts about two months; and in those who are much debilitated, either by age, or the long continuance of the disease, till the summer heats set in. In the first attacks, the joints soon recover their strength, and suppleness; but after the disease has recurred frequently, and the fits are long protracted, they remain weak and stiff, and at length lose all motion.

The above are the symptoms of acute or regular gout.

Chronic gout, (which is by some physicians called irregular gout,) is the disease of a worn-out or debilitated constitution. Here the inflammation and pain are more slight, irregular, and wandering, than in the acute; there is only faint redness of the affected joint, or no change at all from the natural appearance of its surface; there is much permanent distention of parts, or continued swelling, with impaired moving power; no critical indications of the disease terminating, present themselves. The symptoms are always associated with a disordered state of the digestive organs, a languid or oppressed circulation, and much nervous irritation in the system. The patient is distressed with various uneasy sensations in the stomach, as pain, flatulent distention, craving or deficient appetite, heartburn, &c.; the bowels are either costive, or too much relaxed; fluttering sensations are often felt about the heart; the painful sensations experienced in the affected part, are rather those of heat and coldness alternately, than of the more continued *burnings* which take place in the acute form of the disease: the spirits are depressed, and the mind very irritable.

The subjects of chronic gout are generally such as have, for a considerable time, laboured under regular attacks of the acute form of the disease; this, however, is not universally the case; for in some delicate or enfeebled constitutions, the gout soon begins to assume the chronic form.

Retrocedent gout is that form of the disease, in which the morbid action is suddenly transferred from the joint, or other external part affected, to some internal organ, as the stomach, intestines, head, &c.

Whatever tends to produce an unhealthy fullness of the blood-vessels, disorder the digestive organs, and impair the vigour of the system, may be ranked among the causes of the gout. Perhaps the principal causes are an indolent and luxurious life, or a sedentary and studious one; hereditary predisposition; anxiety or vexation of

mind; excessive evacuations of any kind; cold; a flatulent diet, or immoderate indulgence in fermented or acid liquors; the suppression of any accustomed discharge; sudden exposure to cold when the body is heated; wet applied to the feet; costiveness; a variable climate. These may act both as predisposing and exciting causes.

It seems indisputable, that the more violent the fit, and the longer its continuance, the more the gouty disposition is confirmed; and the oftener the attack is renewed.

A continued imprudence, intemperance, or excess in diet, disposes the gout to become chronic, and at last retrocedent, and to attack the stomach in the enervated, and the head in the corpulent.

Gout is distinguished from rheumatism by the previous and accompanying symptoms of indigestion above noticed, which do not necessarily occur in rheumatism; by the pains attacking particularly the smaller joints, while rheumatism occupies the larger; by the deeper redness and greater swelling of the parts affected in the gout than those which are the seat of rheumatism; and by the age of the patient, his habit of body, and mode of living.

The treatment of *acute* gout naturally resolves itself into that proper while the fit is on, and that required during the intervals.

Before the treatment proper during a fit of the gout is entered upon, it is proper to observe, that when a patient is warned of the probable approach of a gouty paroxysm, by the occurrence of drowsiness, heartburn, flatulence, costiveness, pricking and numbness in the lower extremities, coldness of the legs and feet, general chilliness, and other premonitory symptoms, which the subjects of the disease are well acquainted with, it will be invariably advisable to attend to these signs, and to resort to suitable remedies without delay, since by proper management the threatened attack may frequently be averted; and even if this object cannot be fully accomplished, the par-

oxysm, when it does occur, will be thereby rendered milder, and probably shorter. The preventive remedies will vary according to circumstances. In all cases, complete abstinence and the use of some mild diluent, as toast or barley water, are all-important measures. In the young, the robust and plethoric, or whenever there is considerable hardness or fullness of pulse, the abstraction of blood will be beneficial, the bleeding being followed by a gentle purgative of magnesia and rhubarb, or a wine glassful of the following every two hours, until free evacuations from the bowels are procured: senna, one ounce; manna, half an ounce; sulphate of magnesia, one ounce; cinnamon, half an ounce; to be made into a tea with three half pints of boiling water. After the operation of the purgative, the feet may be immersed in warm water before retiring to bed at night.

In those cases where the debility of the patient is such as to forbid a resort to bleeding, leeches or cups over the stomach will generally be found advisable, with a purgative of magnesia and rhubarb, the warm bath, and frictions over the whole surface of the abdomen every evening, and at bed-time one of the following pills: blue mass, twelve grains; aloes, four grains; ipecacuanha, two grains; soap, eight grains; oil of cinnamon, two drops; for four pills.

When a regular paroxysm of gout has commenced, if the patient be of a robust constitution, and the disease is attended with evident symptoms of inflammation and febrile excitement, bleeding from the arm, proportioned in extent and repetition to the degree of existing inflammation and fever, followed by such purgatives as are calculated to produce a free and speedy evacuation of the bowels, without inducing much irritation, will be found to be the treatment best adapted to relieve the present sufferings of the patient, and to prevent their return in future. The purgatives best adapted to the case, are either magnesia and ru-

barb, castor oil, the compound senna tea, or the following: calomel, one grain; antimonial powder, one grain; compound extract of colocynth, three grains; to be made into a pill with simple syrup. This pill may be given at night, and the next morning the following mixture: calcined magnesia, fifteen grains; Epsom salt, a drachm and a half; vinegar of meadow saffron, a drachm; mint water, an ounce and a half; syrup of orange peel, a drachm. The purgatives should be repeated, until a healthy condition of the intestinal discharges is procured.

After the employment of general bleeding and purgatives, if the local affection still continue with any violence, leeches or cupping-glasses may be applied in the vicinity of the latter, and followed by a blister. The affected part should be freely exposed to the cool air, and while we avoid every excitement of body or mind, the patient is to be strictly confined, so long as the fit continues, to the same diet and drinks as are adapted to ordinary cases of inflammation; acidulated fluids should not, however, be allowed him. Such is the plan of treatment we should recommend for a case of acute gout, and though it will be found to differ widely from that advised by many eminent practitioners, who, considering gout to be a disease of debility, or a salutary effort of nature to guard the system from other and more fatal diseases, denounce in the strongest terms bleeding and all evacuating remedies, and wrapping the affected limb in flannel, allow the paroxysm to run its course without interference on their part; yet, as well from the most rational views in regard to the nature of the disease, as from ample and conclusive experience, the propriety of the course we have directed, and its beneficial effects, are established beyond the possibility of doubt.

One of the most efficacious and best local means of relief in cases of acute gout, consists in the use of warm evaporating lotions, as that advised by Sir Astley Cooper in common inflamma-

tion, consisting of two ounces of spirit of wine mixed with eight ounces of water; or that strongly recommended by Dr. Scudamore, which is made by mixing together four ounces of spirit of wine, and eight ounces of camphor mixture. After having rendered the lotion selected agreeably lukewarm, by immersing a tin cup containing it, in a basin of very hot water, it is to be applied to the affected part by means of rags of fine linen, which are to be renewed as often as they become dry. It would be improper to use either of these lotions hot or cold, because, when hot, they are found too stimulating, and when cold, there is a risk of checking the gouty action too suddenly. During the night, when the lotion cannot be used, the part may be covered with a piece of oiled silk, just the size of the linen rags.

Poultices to the inflamed part were formerly much resorted to, and are still, perhaps, too commonly employed. When used hot, they are liable to the same objection as hot lotions—that of being stimulant; and when applied cold, they in general suddenly check the local action, and are, therefore, often followed by alarming symptoms. But a poultice made by wetting a sufficient quantity of fine bread crumb, with one of the above lotions hot, and applying it to the inflamed joint when it has become just comfortably lukewarm, is often of considerable service in relieving the pain and inflammation, and generally agrees remarkably well. This poultice may be repeated twice in twenty-four hours.

Under symptoms of very severe suffering, it may frequently be advisable to apply some anodyne directly to the part affected, in addition to the internal use of opium; and the extract of belladonna appears to be a very appropriate and efficacious application for this purpose. A drachm of this extract may be mixed with an ounce of spermaceti ointment, and a sufficient quantity of this mixture, to cover the affected part, spread on lint, and applied over the seat of pain. In urgent cases, it may

be repeated twice or thrice in the twenty-four hours, if necessary; and sometimes its tranquillizing effects will be augmented by covering it with the bread poultice, made with spirit of wine and camphor mixture, as just described.

Sydenham long ago pronounced a fluid, diluting diet, the proper one during a fit of the gout; and such a diet is still recommended by the best informed of the profession. Under very acute symptoms, the nourishment must be wholly fluid, unstimulating, and rather small in quantity, until the severity of the inflammation, &c. has been subdued, and the patient is beginning to recover. The best food for the patient in this stage, is bread and milk, light bread puddings, gruel, barley water, and rennet whey. Roasted apples, grapes, and oranges, are likewise generally admissible; and when the patient begins to recover, an egg may be added to the above, and sometimes a little bit of chicken or roast mutton for dinner. It should be particularly noticed, that even a small excess or impropriety in diet, during a gouty paroxysm, always materially aggravates and prolongs the attendant sufferings, and sometimes gives rise to severe erysipelas, either in conjunction with the disease, or as an immediate sequel to it.

In a severe fit of the gout, and during the height of it, the patient is of necessity confined to his bed in a helpless state, and then the affected limb must be carefully placed on small pillows, in the most easy position; but except under such extreme circumstances, the patient ought not to indulge in bed beyond what is unavoidable. When able, he should every morning leave the bed for the couch or the chair, having his legs raised and supported in the most easy position; and, in proportion as pain and inflammation abate, should gradually employ such further exertion as relieves rather than produces irritation. Subsequent stiffness and debility of the limbs are invariably to be counteracted, in a

great degree, by moderate and early efforts at exercise, cautiously attempted.

When the patient is convalescent, he must, notwithstanding, continue the use of the proper alterative and aperient medicines for some time; indeed, until all the secretions assume a healthy character; and these remedies should be accompanied with a mild, moderate, and suitable diet and regimen. For, at this period, the chief indications of treatment are, the restoration of the digestive functions to a healthy state, and of the weakened limbs to a due degree of strength; and the means just alluded to are, undoubtedly, the most appropriate and efficient for the accomplishment of these purposes, with which vegetable bitters and mineral tonics may sometimes be advantageously united. The pill composed of calomel, James's powder, and extract of colocynth, previously mentioned, will answer well as an aperient; it is certainly a useful form, and will be of much service to many gouty individuals. The proper object, at this period, in the employment of opening medicines, is gently to clear the bowels, and excite healthy secretions from them, without inducing a direct purgative effect.

It is a common practice, in the state of convalescence from gout, to recommend a stomachic and strengthening medicine to be taken during the day, and either a vegetable bitter, or some preparation of steel, is usually selected by medical men. This practice, however, should be restricted to such cases as are unaccompanied with any remaining irritation of the stomach, and in which a regular and healthy state of the alvine evacuations has been established; and even in such, it will generally be best to commence with a bitter infusion combined with an alkali, and from that to proceed to the use of some preparation of steel.

Sometimes the alkaline solution alone proves a valuable tonic to patients recovering from a fit of the gout. A tea-spoonful may be taken, thrice a day, in barley water, or milk and

water. As a mineral tonic, the tincture of muriated iron, or the tincture of ammoniated iron, are eligible forms. Twenty drops of the former, or thirty of the latter, may be taken twice or thrice daily, in an ounce and a half of an infusion of columbo, or of cascarrilla.

The diet, during the state of convalescence, should consist of a moderate quantity of the most digestible animal food, once a day, with eggs, bread, and different preparations of rice and milk; and change of air and scene, with suitable exercise, will always be very serviceable.

The limbs, especially the affected parts, should now be regularly sponged with lukewarm salt and water every morning; and after the skin has been wiped quite dry, they should be well rubbed with the hand, or a flesh-brush till a comfortable glow in the parts is produced. This practice, if persevered in, will generally be very effectual in removing debility and stiffness of the joints. Should any particular feebleness of the limbs exist, in addition to the morning sponging, the following liniment may be freely rubbed over the joints twice a day: compound camphor liniment, and compound soap liniment, of each, an ounce and a half; tincture of Spanish fly, three or four drachms. If the lower limbs are affected with swelling, the use of a calico or flannel roller will be found useful.

During the intervals, we have it in view to prolong them, and to render the succeeding fit mild and regular, or entirely to prevent its return; and the most powerful means of accomplishing these desirable objects, are the strict observance of a suitable and moderate diet, active exercise in a salubrious air, and early rising, united with a very cautious use of aperient, alterative, and stomachic medicines.

A proper diet and regimen have long been regarded as among the most essential parts of the treatment of gout, as well in the intervals as during the fit; indeed, they are of such pre-eminent utility, that they will alone often display a remarkable power in bettering

the condition of the patient, and sometimes even nearly approach to a curative effect; while, without them, no other means will be attended with any great or lasting benefit. If the patient be of a full habit, especially if young, and not long afflicted with the disease, his diet should constantly be very mild, and rather small in quantity, consisting chiefly of farinaceous food; but if he has been long harassed by the disease, and is deficient in strength, his diet, although mild, and moderate in quantity, ought to be nourishing, and should, therefore, consist of a suitable proportion of animal and vegetable food. Ardent spirits are altogether inadmissible in every case, and the robust and plethoric should cautiously avoid wine. Ale and all the stronger malt liquors must also be entirely forsaken. The information given on this subject under *dyspepsia* will assist the gouty in the selection of those articles of food which are the best for them; and they should never forget, that moderation in quantity must be invariably the order of the day. The gouty patient must retire and rise early; change, if possible, the air of the crowded city for that of a healthy spot in the country; and use daily active exercise, proportioned to his strength.

In the intervals, the condition of the stomach and bowels should also claim constant and especial attention, as it is highly necessary that they should be preserved free from any accumulation, or irregularity in their action.

The principal indications of treatment in *chronic* gout, are to lessen irritation in the stomach and intestines, and restore their healthy secretions; to strengthen them and the constitution at large, and to apply mild applications of a soothing, cooling quality, to the affected joints.

It is clear that the best means of obviating irritation in the digestive organs, and of imparting increased strength to them, and to the system generally, is by the proper use of aperient, alterative, and tonic medicines, combined with a mild, moderate, and

nutritious diet, a correct regimen, and daily exercise in an open, salubrious air; with which, in some cases, the occasional use of anodyne medicine must be united. The due regulation of the bowels is of the first consequence; but from the local irritation existing here, as well as the general debility which is present, purgatives must be avoided. If the bowels can be regulated by diet and exercise, so much the better; but if not, mild aperients, chiefly of a warm, aromatic quality, should be resorted to, once, twice, or thrice a week, or as occasion requires. For occasional use, the following mixture will be proper, and sometimes prove particularly beneficial: calcined magnesia, four scruples; Epsom salt, six drachms; mint water, five ounces; vinegar of meadow saffron and syrup of common saffron, of each, half an ounce; but for ordinary use, a warm laxative pill, as the following, is preferable: compound extract of colocynth, compound rhubarb pill, of each, half a drachm; calomel, twelve grains; oil of carraway, five drops; to be made into fifteen pills with simple syrup; of which two constitute a dose. Generally speaking, calomel should not make any part of the aperient administered, unless the secretions are in a very vitiated condition, as evidenced by the unhealthy appearance of the stools, urine, and tongue. Under such circumstances, however, small doses of calomel, given every second or third night, either with the aperient ingredient, or as follows, will be of great service: calomel, twenty grains; emetic tartar, four grains; resin of guaiacum, powdered, two scruples; to be made into twenty pills with conserve of roses; or, calomel, twenty grains; antimonial powder, twenty-five grains; resin of guaiacum, powdered, two scruples; to be made into twenty pills with conserve of roses; dose of either prescription a pill every night, or every night and morning. The Seidlitz powders are often a useful aperient for the gouty. It must be particularly noticed, that the proper object in the employment of

aperients in this form of gout, is to keep the bowels clear without irritating them, or weakening the general system, and without producing frequent evacuations; and that, in resorting to a mercurial alterative, care should be exercised not to allow it sensibly to affect the constitution by its specific operation, as whenever it effects the mouth, or renders the pulse quick and hard, its injurious effects are certain. The alterative pill last mentioned, taken twice or thrice a week regularly, is frequently very beneficial; and sometimes six ounces of the compound decoction of sarsaparilla may be advantageously taken, twice a day, at the same time.

As tonics, the alkaline solution, with infusion of cascarilla, gentian and colomba, and preparations of steel, merit the most confidence. In the beginning, the patient should take only half a tea-spoonful of the solution, twice or thrice a day, in water, or an infusion of cascarilla, and gradually increase to a tea-spoonful and a half, or two tea-spoonfuls, at a dose. Its continued use almost always favours the natural action of the bowels—a circumstance of no small moment to the gouty.

In almost all cases, the warm bath is a useful auxiliary.

The local treatment of chronic gout is similar to that recommended for the acute form. The lotion of spirit of wine and camphor mixture, should be applied whenever there is any tenderness or inflammation in the parts affected, or, if there be much pain, the belladonna ointment. Leeching also will be of service in chronic gout, whenever the local pain and swelling are very considerable. When the inflammatory symptoms of the joints have been removed, the system of sponging them and the lower extremities with lukewarm salt water in the morning, and applying active friction afterwards, twice in the day, with the stimulating liniment, will be found highly useful.

To relieve the pains of the chronic form of the present disease, the milder

kinds of anodynes should be given, such as Dover's powder, in small doses, in conjunction with the saline effervescing draught; the extract of garden lettuce, or the solution of acetate of morphia. Four grains of Dover's powder may be taken at bed-time, or three grains twice or thrice a day, in conjunction with the saline draught, which augments its good effects. Or five grains of the extract of garden lettuce may be taken, when the pain calls for it. Ten or fifteen drops of the solution of acetate of morphia is likewise a valuable anodyne in these cases. It is advisable to take it in soda water, or the effervescing mixture.

But the patient ought not to place too great a dependence on medicine, since a proper diet and regimen, sufficient active exercise, and change of air and scene, will sometimes be of more service than all the drugs of the apothecary, and are invariably productive of the most salutary effects. The diet should consist of mild nourishing food, in moderate quantity; the hours of rising, and retiring to rest, should be early, and habitually observed; all anxiety of mind, and severe studious habits, must be avoided; and the patient should be as much in the open air as possible. The advice given on these points under *dyspepsia* will be applicable here. Temperance and exercise judiciously resorted to, and persevered in, have often wrought great and salutary changes in the gouty man's constitution.

We would here earnestly recommend *friction* to the notice of the gouty sufferer. As a mode of exercise, and means of invigorating both locally and generally, it is of the highest value, and is particularly worthy of our attention in this complaint, because the patient is so frequently rendered incapable, for a long period, of resorting to the usual modes of exercise with much advantage. Under such circumstances, friction may be employed as an agreeable and certain means of restoring energy, at first to the limbs, and ultimately to the whole frame. It pro-

motes circulation and perspiration, removes obstructions, reduces swelling and thickenings, and, when persisted in daily, has an amazing effect in strengthening weak parts. It is applicable to the state of convalescence both from acute and chronic gout, and should be used twice or thrice a day, for ten, fifteen or twenty minutes, or more, at each time. If the patient is not able to do it himself, an active servant must be employed until he is able, which will soon occur. It may be performed with flannels, flannel gloves, or a flesh-brush. The latter is in general the best instrument. In resorting to this remedy, the limbs and parts principally affected by the disease should claim the chief attention, but it may be carried over every part of the body with great effect. Next to the limbs, the region of the stomach and bowels ought to be attended to, and when thus applied it is of very considerable service in promoting digestion, and increasing the appetite.

We have already said, that when the gout suddenly quits the limbs, and fixes on some internal organ, as the stomach, bowels, lungs, or head, for example, it is called *retrocedent* gout. The general idea of the nature of the internal affection thus induced is, that it is spasmodic; but it may be either spasmodic or inflammatory. The parts most commonly attacked in the first case are, the stomach and intestines, and the symptoms present are exquisite pain and spasm, and usually sickness. If the attack be purely spasmodic, the muscles of the belly are rigidly contracted, pressure affords relief, and the pulse is not much affected. When, on the other hand, it is inflammatory, the parts are tender, and will not bear the slightest weight or pressure, and the pulse is either small and indistinct, or full, hard, and oppressed. In very delicate nervous subjects, the attack is often spasmodic; in the corpulent or vigorous, it is generally inflammatory, especially when it has followed imprudent exposure to cold.

The treatment of retrocedent gout

will, therefore, differ, according as the attack in the stomach, intestines, or whatsoever part is affected, is spasmodic or inflammatory. If we have reasons, from the above considerations, to consider it spasmodic, five or ten grains of calomel should be given directly, which may be immediately followed by an injection, made by dissolving an ounce of Epsom salt in a pint of barley water or thin gruel, and then adding two ounces of olive oil, and when the stomach will retain a purgative medicine, by the compound senna tea. Fomentation of the bowels by means of flannels wrung out of hot water should likewise be employed at the same time, and if speedy relief is not gained by these means, fifty or sixty drops of laudanum, or forty of the solution of acetate of morphia, must be given in any warm drink, and repeated, if necessary, every half-hour, till the pain abates. Ether, either alone or combined with laudanum, is also useful; and should the attack have followed excess or imprudence in diet, and sickness be present, vomiting should first be promoted by giving warm slops, and twelve or fifteen grains of ipecacuanha powder in water. Even, however, in violent affections of the stomach and intestines from retrocedent gout, though the symptoms may be those indicative of a spasmodic or neuralgic affection, especially in young, robust or plethoric subjects, bleeding from the arm and the application of leeches over the seat of the pain will be both prudent and beneficial.

If the attack of retrocedent gout occur in a person of a full vigorous habit, and there is reason to regard it as inflammatory, the usual means for checking inflammation must be resorted to with promptness and decision. Sixteen or twenty ounces of blood must be taken from the arm, and the operation be repeated in a short time, if the pain continues; leeches may also be applied over the bowels; warm fomentations to the abdomen; and a mustard poultice be applied to the feet, in

order to solicit back the gout to the extremities. After bleeding has been resorted to, a large blister should be immediately applied near the part affected.

When gout attacks the head, it is generally of an inflammatory nature, and will require cupping, blisters, mustard poultices to the feet, &c.

BLEEDING FROM THE NOSE.

A spontaneous discharge of blood from the nose, occurs most commonly in young persons, and is very frequently succeeded at a later period by bleeding from the lungs. Persons considerably advanced in age are not, however, entirely exempt from it. One of the most obstinate cases on record, was in a patient upwards of forty-five years of age. The discharge of blood from the nostrils is most generally preceded by some degree of local heat and itching, and frequently by a sense of weight and numbness at the root of the nose. There is, occasionally, flushing of the face; a throbbing of the temporal arteries; a ringing in the ears, and sometimes a pain, fullness or sense of weight in the head; yet not unfrequently the blood issues suddenly from the nostrils without any of these previous symptoms. The quantity of blood discharged, as well as the continuance of its flow, are extremely various in different cases; sometimes, after a few drops have flowed from the nose, the hemorrhage ceases and does not again return for many months; in other cases the discharge continues for many hours, or returns daily; while again the discharge is occasionally very profuse. The most common exciting causes of this disease are, cold applied to the feet; sneezing; exposure to the direct rays of the sun; an accidental blow upon the root of the nose; a considerable shock imparted to the body, as in accidentally stumbling; irritating substances accidentally inhaled into the nostrils; violent fits of passion, &c.

Some curious cases are related, in which, in consequence of peculiar

idiosyncrasies, bleeding from the nose has been brought on by smelling an apple or rose, or by the ringing of bells.

When this disease occurs in the young, robust and plethoric, it is seldom one of much consequence; after the bleeding has continued for some time, it, in such cases, generally ceases of itself. When, however, it is more profuse or of frequent occurrence, it is the duty of the practitioner to put a stop to it, and endeavour to destroy the liability to its return. To effect the first object, the patient is to be kept in an erect posture—all those portions of his clothing being removed which appear to have the least tendency to impede the free return of the blood from the head; he is to be exposed to a current of cool air, and if of a full habit, or considerable febrile excitement be present, a vein in the arm should be opened and an adequate quantity of blood drawn off. This is especially important in every instance where the symptoms, such as pain and heaviness of the head, flushed face, throbbing of the temporal arteries, &c. indicate any considerable determination to the brain. A dose of some saline purgative, as Epsom salt, is now to be administered; and if the bleeding still continue, cold water may be applied to the nose by means of wet cloths or a sponge; as also to the forehead, to the back of the neck, to the genitals, &c.; these cloths are to be renewed as soon as they acquire any increase of temperature.

By the employment of these means, in ordinary cases, seldom much difficulty will be experienced in arresting very speedily the flow of blood. But when the bleeding is very profuse, or still continues but little abated notwithstanding their use, other remedies will be demanded.

It has been recommended to plug up the nostrils with simple lint, or with lint steeped in cold vinegar, in a solution of sugar of lead, sulphate of zinc or other astringent—or covered with moistened charcoal. These plugs can of course be of benefit only in those cases where the bleeding is from the

anterior portion of the nostrils; when it proceeds from the mucous membrane lining the posterior portion of the cavities of the nose, notwithstanding these plugs, the blood may continue to flow into the mouth in considerable quantities. Various means have been proposed for applying pressure to the vessels in this latter situation, but no one appears to be well adapted to this purpose. We should advise, therefore, to trust to other remedies.

Dr. Darwin relates the case of a lady, in whom the bleeding from the nose had continued for several days. The common means for arresting it failing, she was directed to immerse her whole head in a pail-full of cold water, to which a few handfuls of salt had been added, on which the bleeding immediately ceased and did not return. Her pulse continuing hard, it was found necessary to open a vein in her arm on the ensuing day. The same expedient has been resorted to in similar cases, and with a like prompt effect.

In obstinate cases of bleeding from the nose, much benefit will be derived from the application of a blister to the nape of the neck, or between the shoulders.

Dr. Archer, of Norfolk, relates a remarkable instance of the efficacy of a blister in arresting a profuse bleeding from the nose. Every remedy that could be suggested had been put in practice, but failed in putting a stop to the discharge; the patient was nearly exhausted, when, on the fifth day, a blister was applied to the back part of the neck; no sooner did it begin to draw, than the bleeding ceased, as if by a charm; as soon, however, as the blister completely healed, the bleeding returned; the blister was applied anew and kept open for some time; the discharge of blood again ceased, and the patient recovered his health. A case is also related by a Dr. J. P. Street, where the application of a blister to the neck was equally efficacious under similar circumstances. Other physicians speak favourably of this practice.

Stoll recommends emetics in cases

of this kind. We cannot, however, approve of their employment. As soon as the hemorrhage is arrested, proper measures are to be taken to insure the patient against its return. All the exciting causes are to be carefully avoided; if the patient be of a sanguine or plethoric habit—he must be confined principally to a vegetable diet, and use regular moderate exercise; while his bowels are to be kept regularly open by occasional doses of some saline purgative.

SPLITTING OF BLOOD.

Spitting of blood, or hæmoptysis, is a discharge of blood from the lungs or wind-pipe.

It is generally preceded by a sense of weight, anxiety, and pains about the breast, with some degree of difficulty of breathing, often a sense of heat, sometimes under the breast-bone, and sometimes moving from place to place; and a little before the blood appears, there is frequently a saltish taste in the mouth. At length a tickling at the top of the windpipe occasions hawking, which brings up a little blood of a florid colour, and more or less frothy. As the quantity of blood discharged from the vessels increases, there is a rattling noise in the windpipe before it is brought up, and then it comes less by hawking than by coughing, which is sometimes the case from the first.

These local symptoms are often preceded by general chilliness, with weariness of the limbs, pains of the back and head, costiveness, frequent full pulse, and other symptoms of fever.

This disease is often of an alarming character, from its indicating a tendency to consumption of the lungs, especially when it occurs in persons with a narrow chest, and of a consumptive appearance. If it be followed by cough, pain, or difficulty of breathing, the danger is considerable.

Those of a sanguine habit, slender make, and delicate constitution, are most subject to it, and it occurs most frequently between fifteen and thirty-five years of age, and in spring or au-

turn. Fullness of blood disposes to it, and so does great sensibility and irritability of constitution, combined with a narrow conformation of the chest.

The occasional causes of this affection are, external heat,—a considerable and sudden diminution of the weight of the atmosphere,—whatever increases the force of the circulation,—violent exercise or straining,—the external application of cold and moisture.

The only disease with which spitting of blood is liable to be confounded, is a discharge of blood from the stomach, called vomiting of blood; but in the latter the blood discharged is usually in much more considerable quantity, than when it comes from the lungs,—of a darker colour,—more grumous,—often mixed with other contents of the stomach, and commonly unattended with cough. In spitting of blood, it is brought up by hawking or coughing, is of a florid red colour, and mixed with a little frothy mucus.

A discharge of blood from the lungs may appear either in the sanguine and florid, or in the debilitated and pale. In the former case, it is accompanied with increased action of the heart and arteries, and the blood is florid and tenacious; in the latter, it is attended with general laxity or debility, weak vascular action, and the blood is thin, and of a diluted red. Of course, the treatment must vary, in some degree, in these opposite states of the constitution.

In spitting of blood occurring in persons of a sanguine temperament, whose strength is little or not at all impaired, the most important remedy is blood-letting. A vein should therefore be opened in the arm, and a quantity of blood drawn off, varying from twelve to twenty ounces, according to the urgency of the case, the age and constitution of the patient, and the strength and fullness of the pulse. If the discharge of blood from the lungs be not arrested by the first bleeding, the pulse still continuing strong and full, and the skin of the patient parched and hot, the abstraction of blood from the arm

should be repeated after a short interval, and followed by the application of from six to twelve cups to the fore part of the chest. In those cases in which the patient is debilitated, and the pulse not at all or but little excited, the bleeding from the arm should be omitted, but the application of cups to the chest is in nearly all cases required, and the propriety of its repetition must be determined upon from the general symptoms of each case. Upon the early and judicious employment of the lancet and cups, or of the latter alone, the safety of the patient, in all attacks of spitting of blood, will mainly depend. In conjunction with the lancet, nauseating doses of tartar emetic will often be found eminently beneficial. Either of the following prescriptions may be employed: tartar emetic, one grain; water, one ounce; dose, a tea-spoonful every three hours; or, nitre, one drachm; tartar emetic, one grain; water, two ounces; dose, a tea-spoonful every two hours; or, nitre, powdered, one drachm; tartar emetic, two grains; calcined magnesia, fifty grains, for twelve powders, of which one every three hours is the dose.

When the discharge of blood from the lungs is very profuse, immersing the patient's feet in hot water, to which a quantity of salt or mustard has been added, will often aid in arresting it.

Nitre alone has been strongly recommended in this disease, and is often of great importance. The Italian physicians have unlimited confidence in it, and employ it in large doses, as a drachm dissolved in cold water, repeated three or four times a day. It may be given in this way, or in doses of ten grains, repeated every hour or two, till the urgency of the symptoms subsides, and then at longer intervals. It should not be continued longer than two or three days at a time.

Subsequently to bleeding and the application of cups, a large blister should be applied over the whole chest, and if the symptoms of the disease are not sensibly relieved by the first, after it is healed, a second should be put on,

which is preferable to keeping up the discharge from the first, by means of irritating ointments. Blisters will be advisable in all cases after bleeding; when the disease occurs in debilitated subjects, they constitute our most important remedy.

Fainting is often serviceable in checking bleeding from the lungs, and it is, therefore, improper to use means to prevent it, where the bleeding is considerable. On this account, cordials, strong odours, and every other means of rousing the patient, should be avoided, in every case of spitting of blood, occurring in full habits.

At the same time that the above remedies are resorted to, the temperature of the patient's room should be kept as low as possible, by the usual means, and cold externally applied to the chest, is sometimes of great service. In extreme cases, therefore, cloths wet with the coldest water may be freely applied to the chest, between the shoulders, and to the genitals. Dr. Rush was in the habit of directing, in cases of profuse bleeding from the lungs, a tea-spoonful of table salt, powdered; which the patient is slowly to swallow in its dry state. The prescription may be tried, but it should not be trusted to, to the exclusion of other remedies.

Digitalis, or foxglove, is a medicine which has been recommended as of considerable value in the present disease; it may be given in doses of from half a grain to one grain of the powdered leaves, every second or third hour in the commencement, and afterwards twice or thrice a day. It is sometimes highly valuable when spitting of blood threatens to terminate in consumption, in young persons of a florid complexion. The sugar of lead is another remedy of very considerable efficacy in many cases of spitting of blood, after due depletion by the lancet and cups. It may be given in the following manner: sugar of lead, twenty grains; ipecacuanha, four or five grains; powdered digitalis, three or four grains; to be made into ten pills with conserve

of roses; dose, one every three hours. After bleeding from the lungs has been arrested, it often happens that a constant irritating cough continues; to relieve this, one of the following pills at bed-time will be advisable: sulphate of morphia, two grains; ipecacuanha, one grain; powdered digitalis, two grains, to be made into four pills.

In this complaint, particularly when it occurs in persons of a sanguine habit or florid complexion, whose strength is little or not at all impaired, the diet should be scanty, and of a mild vegetable description, as barley, rice, gum or toast water; all kinds of animal food and stimulating liquors must be forbidden, and the quantity of drink should be small. The use of acidulous fruits, as oranges, lemons, &c., and vegetable acids, are proper, and whatever is taken should be cold. All muscular exertion, or even great exertion of mind, is hurtful. If, however, this malady occurs in an enfeebled constitution, the diet must be nourishing, though very mild, consisting of panado, gruel, milk, and eggs. Here change of air, and very gentle exercise, are advisable.

After the bleeding has stopped altogether, the patient must resort to means to prevent its recurrence in future, and, for this purpose, they who are of a full habit should constantly observe a mild and chiefly vegetable diet, and moderate exercise, with the occasional use of saline laxatives; while they who are weakly and delicate must endeavour to strengthen the chest, and constitution at large, by a cautious diet and regimen, with warm bathing, daily exercise proportioned to their strength, and change of air and scene.

They who are subject to a spitting of blood should carefully avoid elevated, cold, and bleak situations, and choose a flat or low country, where the air is heavy. If the place is sheltered at the same time, it will be still more desirable. This advice is of great importance, as the most valuable remedies will generally fail of any good effect in this complaint, so long as the

patient continues in an unfavourable situation. They who have been once affected with the disease, should be constantly on their guard. In such, the occasional application of cups to the chest will be beneficial, or an issue may be kept open on some part of the breast.

VOMITING OF BLOOD.

In vomiting of blood, the discharge of blood takes place from the stomach. It is generally preceded by nausea, loss of appetite, flatulence, and other affection of that organ and parts in its neighbourhood. There is often pain or uneasiness of the left side, with anxiety, and a sense of tightness in the chest. The blood discharged is generally dark coloured, clotted, and often mixed with some of the contents of the stomach. In some cases there is also a discharge of dark coloured blood by stool. The amount of blood vomited is various. Sometimes a large quantity is thrown up at once, when the disease ceases, and does not again occur; but in general the vomiting is repeated at short intervals, until the patient is completely exhausted. Vomiting of blood may occur in persons of a full habit and robust constitution, but is most common in those who are weakly, or who have laboured for a considerable time under a disease of the digestive organs.

Whatever greatly deranges the functions of the stomach, or produces diseases of the liver or spleen, may give rise to it; and the most frequent causes appear to be grief, or other depressing or violent passions; costiveness, especially if occurring in a constitution in which the stomach is peculiarly irritable; blows on the region of the organ affected; fullness of habit, combined with an intemperate mode of life; the use of intoxicating drinks; the suppression of the menstrual flux, or of the discharge from bleeding piles; acrid substances taken into the stomach, and the abuse of emetics and active purgatives.

It is, in general, easily distinguished from spitting of blood, by the blood

being here brought up by vomiting, and by its being of a deep modena colour. It is also generally mixed with some of the contents of the stomach. In spitting of blood, on the contrary, the fluid discharged from the lungs is brought up by hawking or coughing, and is generally of a bright red colour.

When a person is attacked with vomiting of blood, he should be kept perfectly quiet, in a room, the air of which is rather cool than warm, and his dress should be loosed so as to prevent any pressure upon the stomach. If the complaint occur in a person of a full habit, and possessing considerable general strength, it will be proper for him to lose from twelve to sixteen ounces of blood from the arm; and if considerable pain or tenderness of the stomach remain after the loss of blood, cups or leeches should be freely applied over that organ. In cases occurring in debilitated habits, or where the discharge of blood has already lowered considerably the strength, cups alone over the stomach will be proper, and cases will occur in which these should be applied without scarifying.

If the bowels are costive, they should be opened by a common injection. The thirst in this complaint is always considerable; it may be allayed by the patient taking small quantities of gum or toast water perfectly cold. In many cases, where the vomiting is incessant, advantage will be derived from the administration of an occasional spoonful of iced water, or even of powdered ice.

When the vomiting of blood has been produced by suppressed menses or a cessation of the discharge from bleeding piles, leeches should be applied about the upper part of the thighs, or to the anus; the patient's feet should then be immersed in hot water, to which salt or mustard has been added, and afterwards mustard poultices applied to the ankles.

Great judgment is required to decide upon the propriety and extent of local and general bleeding, in cases of vomiting of blood. Whenever considerable

irritation of the lining coat of the stomach is present, the recovery of the patient will mainly depend upon its skilful employment; while in those cases in which the patient is exhausted from previous disease or from the amount of blood thrown off from the stomach, an inconsiderate resort to the lancet may hasten his death. After the use of cups, if the disease still continue, a blister over the stomach will occasionally be found useful.

If it be necessary, from the great discharge of blood, promptly to put a stop to the vomiting, twenty-five grains of ipecacuanha should be taken, and if the first dose fail to stop it, a second may be administered after an interval of two or three hours. Ipecacuanha is frequently of very great service in the present complaint. It is applicable to the case of strong as well as of weakly persons.

The super-acetate, or sugar of lead, also is, in many cases, a medicine of great value here, as well as in all other profuse bleedings. Combining it with the ipecacuanha is often advantageous: we may give two grains of the sugar of lead with two of the latter. Calomel in grain doses will in some instances speedily arrest the vomiting; it should be given combined with five grains of gum arabic, and mixed with a little water.

After the blood has ceased to flow, and the patient begins to recover himself, the further treatment of the case will depend in a great measure upon the nature of the symptoms which remain. The occasional application of leeches or cups to the stomach will still be demanded, in most cases.

The diet recommended under *Dyspepsia* will, in general, be the most proper, and an attention to the rules there laid down, for the improvement of the general health and strength, can seldom fail to be followed by satisfactory results.

DROPSY.

Dropsy is a disease consisting in the effusion and collection of a watery fluid

in certain cavities and cells of the body, where it is not perceptible in the healthy state. Thus, water may be accumulated in the ventricles of the brain in the chest, in the belly, and the cellular texture generally, giving rise to a train of symptoms, different in each particular case, and requiring particular modes of cure. Water effused in the ventricles of the brain gives rise to a variety of distressing symptoms, which generally prove fatal; this disease is usually called dropsy in the head, and has been treated of under that title.

Dropsy in the chest, or water effused between the investing membrane of the lungs and the lining membrane of the ribs, is not so conspicuous by any striking change in the external appearance of the chest, as it is distinguished by the dangerous symptoms to which it gives rise.

The disease to which the term *dropsy* is most usually applied, is that general swelling over the whole body, of a soft and doughy feel, accompanied with great weakness, and other symptoms to be hereafter described; or it is that swelling of the belly, from the accumulation of a watery fluid within, by which it is often distended to a prodigious size.

General Dropsy, or *Anasarca*, is a swelling of the external parts of the body, from a collection of serous fluid in the cellular texture, chiefly under the skin; the swelling first appearing on particular parts only, but at length gradually extending to the whole surface. The reason of this progressive extension of the swelling is the free communication between all the parts of the cellular substance; another illustration of which is to be found in the free passage of air into all the surface of the body, when it has escaped from the lungs in consequence of a wound. The swelling in dropsy is always soft and uniform over any member; and when pressure is made upon the skin with the finger, a pit or hollow is formed by the water being pressed out of some of the cells beneath,

into the neighbouring ones. Soon after the pressure is removed, the swelling returns to its former fullness. This is technically called pitting on pressure. Generally, the swelling appears first on the lower extremities, and that only in the evening; it is seldom, at an early period of the disease, very perceptible in the morning. The more a person has been in the erect posture through the day, the greater is the swelling towards evening. It is easy to be seen, that this is owing to the water making its way downwards by its own weight; while the recumbent posture during sleep allows it either to diffuse itself equally over the whole body, or if the quantity be great, and the disease far advanced, to accumulate in the upper parts of the body, and to occasion the swelled face, and closed-up eyes, which some dropsical patients exhibit in the morning. Sometimes the fluid which is accumulated in the cellular texture immediately under the skin, oozes out through the pores of the cuticle; sometimes being too thick to do so, it raises the outer skin in blisters. Sometimes again, the skin not allowing the water to pass through it, is hardened by distention, and gives the swelling an unusual degree of firmness. If, from any cause, an inflammation should occur upon a dropsical limb, it is generally of a bad kind, spreading along a great extent of surface, like the rose, and too frequently ending in gangrene. General dropsy is almost always attended with scantiness of urine, which is generally high-coloured, and after cooling, lets fall a copious reddish sediment. There is also an unusual degree of thirst; and both these last symptoms are to be ascribed to the watery parts of the blood passing into the cellular texture, whereby they are prevented from diluting the acrimony of the urine, and from moistening the mouth, and fauces. The appetite is generally bad; and there is a feeling of debility, with sluggishness, drowsiness, and disinclination to motion. Dropsy is often a very tedious disease; and the patient dies after long suffer-

ing, sometimes from the respiratory organs becoming oppressed with the load of watery fluid; at other times, life sinks exhausted from a universal failing of the digestive and nervous powers.

As dropsy consists in the preternatural accumulation of a watery fluid in various parts of the body, the first step in our inquiry is to ascertain by what this unusual deposit of fluid is produced. In health, a watery fluid is poured out from what are termed exhalant arteries, into every cavity of the body, and into every cell of the cellular texture, to moisten the parts, to render motion easy, and to diminish friction. The absorbent vessels carry off the effused fluid; and in the healthy state of these two sets of vessels, a well-balanced action is kept up, and all accumulation is prevented. Now, if the watery fluid is poured out in greater quantity than natural, the absorbents will not be able to take it up; or if the power of the absorbents is by any cause weakened, they will not take up the quantity effused, even though it should not be furnished to a larger amount than natural. Hence upon one or other, or both of these causes, all dropsies must depend. Increased effusion may be owing, either to a preternatural activity of the ordinary exhalant vessels, or from vessels which carry watery fluids being ruptured. Exhalation is invariably increased by whatever prevents the free return of the blood from the arteries into the veins. This obstruction to the free entrance of the blood from the terminating arteries into the commencing veins, may exist very far from these extremities, even in the heart itself; and hence diseases of the heart and great vessels are often known to occasion dropsy. Formerly, dropsy was believed to be universally a disease of debility, or diminished action; but a certain grade of inflammatory action, or increased fullness and activity of the vessels of the serous membranes, is now acknowledged to be a very common cause of dropsy.

A tumour pressing on the vessels of a limb, causes a watery swelling of that limb; and a tight ligature or garter, or even the difficult passage of the blood from its own weight, causes a limb to swell towards evening. Hence, also, disease of the liver, by obstructing the free circulation of the immense quantity of blood, which should pass through that organ, occasions an increased exhalation into the cavity of the abdomen, and produces dropsy of the belly. On the same principle, also, we explain the dropsical swelling which takes place in the legs and thighs of pregnant women, from the bulk of the uterus pressing on the great vessels which return the blood from the lower extremities. Another cause of increased exhalation is believed by some to be a laxity or weakness of the exhalant vessels; a symptom and a part of that general weakness which sometimes pervades the whole system. Hence, exhausting diseases of various kinds, copious and long-continued discharges of blood, or any other weakening cause, produce a debility of the system, which leads to dropsy. In such cases, however, it is more probable that the disease is owing to a defective circulation of the blood which is allowed to accumulate in certain organs and vessels. Intemperance in the use of strong liquors, especially dram-drinking, is one of the most common, intractable, and fatal causes of dropsy. Dram-drinking has a doubly injurious effect; it disorders the functions of the whole system, thus producing general dropsy; and it occasions disease of the liver, and that obstruction in it which lays the foundation for dropsy of the belly. If there be a greater proportion than there ought to be of the watery parts of the blood, this may give rise to an increased exhalation; and sometimes, though rarely, dropsy is produced in this way, by drinking much watery fluids, which fluids pass off by the exhalants. Profuse bleeding has been already mentioned as causing general debility, and as producing dropsy; but

it may also do so by causing a diminution of the proper proportion of the red globules and fibrine of the blood, which are not so easily repaired as the watery portion. Not only may the exhalations be increased by the foregoing and other causes, but these may likewise cause a diminished absorption.

From the account given of the causes of dropsy, it is evident that, while they continue to act, it will be useless to attempt carrying off the accumulated fluid, and therefore one of our first objects must be to put a stop to those causes. In that species of dropsy which is accompanied by a strong and full pulse, we are to lessen the inflammatory action, and give freedom to the heart and blood-vessels, by copious bleeding; and we must divest ourselves of the prejudice so long maintained, that dropsy in every case is a disease of debility. When the inflammatory action is over, the swelling soon disappears. In a dram-drinker, or an indolent debilitated person, it will be in vain to give drugs, or to direct any particular regimen however salutary, till these bad habits are given up. We are next to attempt to get rid of the water already accumulated. Sometimes very strong purgatives, particularly those which produce large watery stools, procure a very rapid discharge of the accumulated fluid; of this kind are the resinous purges, as gamboge, scammony, and the like; or jalap in combination with aloes, scammony, gamboge, or cream of tartar. A powder for this purpose may consist of eight grains of aloes, ten of jalap, and six of gamboge or scammony, to be taken in a bolus, or suspended in syrup or mucilage. A purgative of great but dangerous efficacy in dropsy, is the elaterium, or wild cucumber, a medicine of great activity, but rather uncertain, and requiring the greatest caution in its administration; the dose at first is not more than the eighth part of a grain of the extract. Another class of remedies much used in dropsy, are diuretic medicines; and could we insure the success of their operation, we

should be better pleased to carry off the dropsical waters in this way, than by any other method whatever. Cream of tartar is, perhaps, one of the best diuretics in general dropsy; squill, alone or combined, in dropsy of the belly; and foxglove, in water of the chest. Another method of evacuating dropsical water, is by making a number of small punctures through the skin, reaching to the cellular substance; and a great quantity of water often runs off in this way; but from the unhealthy state of the constitution, such punctures are very liable to run into mortification; and even the spontaneous bursting of the skin is followed by the same bad effect, so that practitioners are by no means fond of attempting to let off the water by punctures. The dread of the same consequences from wounds in dropsical patients, renders us unwilling to advise setons, issues, or blisters, which have been recommended for the discharge of the water. Cabbage-leaves, applied to a limb, have at times appeared to encourage a very copious exudation of fluid from the surface. Emetics and sudorifics have been recommended, but are not now much trusted to for promoting the discharge or absorption of dropsical waters. It is an important improvement in the cure of dropsies, that the patient is not restricted in the quantity of fluid which he chooses to drink, but that a plentiful allowance of watery liquors is considered as rather conducive to a cure, by conveying to the kidneys any diuretic we mean to employ, and even as of itself greatly promoting their action. Friction is another means of promoting the action of the absorbents; and exercise, if the patient can take it, may have the same effect; and when the swelling is abated in the morning, skilful and equable bandaging will prevent the swelling of the legs towards night. When by these or other means, we have managed to get rid of the water already effused, our next object is to prevent its re-accumulation; and by strengthening the system, to complete the cure of the disease. Exer-

cise, and the proper regulation of the diet, are important items in this plan; and are to be accompanied, in the debilitated, by tonic medicines, as Peruvian bark, bitters, and the preparation of iron. Great attention is to be paid to the state of the bowels; and we must not neglect to keep up a proper action of the skin and of the kidneys.

DROPSY OF THE BELLY.

In this form of dropsy, the water is accumulated, in general, within the cavity of the belly. In some cases, however, it is said to be effused between the lining membrane of that cavity and the abdominal muscles, while most writers include under this head, also, dropsy of the ovaries, and all cases in which the water is contained in cysts, as when it affects the liver, spleen, omentum, &c. In all these cases, the characteristic symptoms of the disease are a tense swelling of the abdomen, accompanied by a fluctuation of fluid within it, more or less evident. As the several varieties of dropsy above enumerated, seldom occur without some degree of effusion into the cavity of the abdomen, and as in most cases it is extremely difficult to distinguish them from each other, previous to death, we have thought it proper, on the present occasion, to consider them all under one head—noticing any symptoms or remedies particularly referable to each, as we pass along.

Dropsy of the abdomen is accompanied generally by the same symptoms as were enumerated in the variety last treated of; there is lassitude or disinclination to motion; a dry skin; loss of appetite; thirst; costiveness, and scanty urine. Occasionally, the disease commences by external dropsy, particularly of the lower extremities; at length, however, the abdomen becomes tumid, and more or less rapidly swells to a size sometimes enormous. The swelling of the abdomen may or may not be accompanied by some degree of general dropsy, such as a pale or discoloured skin; tumefaction of

the face and eye-lids ; the surface pitting upon pressure with the fingers, &c. As the fluid accumulates in the abdomen, the breathing becomes more and more difficult, especially in a horizontal position. Flatulency is frequently a distressing symptom. Pains of a colicky nature are occasionally complained of in the stomach and intestines, and the sleep is always more or less short and disturbed. In women, the menstrual flux is very commonly interrupted, and few cases of the disease occur in which piles are not an attending symptom. The swelling of the abdomen is uniform in those cases in which the fluid is contained within the peritoneal cavity ; but when the case is one of ovarian or encysted dropsy, it is generally found that one side or some particular part of the abdomen is more protuberant than the rest. The feeling of weight, as well as the distention of the abdomen, will vary in some degree, according to the position of the patient's body. They are always greater when the latter is erect ; when recumbent, the weight is felt most on the side on which the patient lies ; and the distension is somewhat decreased on the side which is uppermost. In the majority of cases, the practitioner, by applying his right hand on one side of the abdomen, the patient sitting or standing, and tapping gently with the left on the opposite side, will be sensible of a distinct fluctuation of the contained fluid. In some cases it will be even obvious to the ear.

The pulse, the temperature of the skin, the state of the tongue, and other symptoms, vary greatly in different cases, according to the cause by which the disease has been produced ; and when it is dependent upon disease of some important organ, many symptoms will be added to those just enumerated. While abdominal dropsy may be produced by all the causes which give rise to general dropsy, it is most commonly dependent upon a diseased condition of the liver, spleen, or other of the abdominal viscera ; or an acute or chronic inflammation affecting

the peritoneum, by whatever cause occasioned.' Blows upon the abdomen, exposure to cold, violent straining of the abdominal muscles, &c. have been known to give rise to it. In the course, also, of certain eruptive complaints, such as measles, scarlet fever, &c., particularly when the eruption has been imperfect or suddenly disappears, from imprudent exposure or an improper treatment, dropsy of the belly, occasionally very rapidly, shows itself.

The distinction between abdominal, ovarian and encysted dropsy generally is, as already remarked, with difficulty established in by far the majority of cases.

In ovarian dropsy, however, if it be watched from its commencement, it will be found that at first, before the belly is greatly enlarged, a tumour may be felt, which is moveable, and falls from side to side as the patient changes her position in lying, or assumes suddenly the erect posture ; and at a later period, the abdomen will be found unequally prominent, one side being swollen to a greater extent than the opposite one.

Dropsy of the belly requires to be carefully distinguished from a state of pregnancy. Occasionally, pregnancy and abdominal dropsy may occur together. The last is certainly an extremely perplexing case, and when the pregnant condition of the uterus is not suspected by the patient or practitioner, the life of the child, and even that of the mother may be greatly endangered.

In regard to the treatment of abdominal dropsy, nearly the same remedies will be demanded as in the preceding variety. The same circumstances will call for the use of the lancet in the one as in the other ; namely, febrile symptoms, attended with a contracted, or full and hard pulse, and particularly if, in the case of ascites, these be attended with pain upon pressure of the abdomen.

It will, indeed, be found in general, that where the disease has come on suddenly, in the young, or those of a comparatively robust constitution, more

or less of those symptoms will be present, which demand blood-letting to a greater or less extent.

In many cases, local bleeding, by leeches to the abdominal parietes, may be employed in conjunction with, or even to the exclusion of general bleeding, particularly in the early stage of the disease.

The same purgatives and diuretics under similar circumstances of the disease are demanded in this form of dropsy as in the preceding. The compound powder of jalap and cream of tartar; gamboge; claterium; nitre, by itself, or in combination with squill and calomel; digitalis, and diluent drinks, will, in different cases of the disease, be frequently found very rapidly to diminish the swelling. So frequently is the existence of dropsy of the belly connected with a deranged condition of the liver, that an alterative course of mercury, properly timed, forms a remedy of no little importance in this form of the disease, and when aided by the judicious administration of remedies which act upon the kidneys, by increasing their secretion, it has succeeded in dispersing the accumulated fluids, and in conducting the case to a favourable issue.

In dropsy of the belly, dependent on disease of the liver or other organ, the urine is generally loaded with bile, and scant in quantity, depositing, on cooling, a pinkish or red sediment, and according to Dr. Blackall, is not coagulated by heat or nitric acid. Our most certain diagnosis, however, is obtained from the history of the case, and the presence of symptoms referable to a diseased condition of some one of the abdominal viscera.

A remark of some importance may be made here, that every condition of the general system is not equally favourable to the remediate operation of mercurial preparations when administered with a view to their specific effects. It is stated by Maclean, Blackall, and other writers on the disease, that some firmness of the general habit is demanded for the successful administration of mercury

in dropsy; whilst in a depraved or broken-down constitution, in which, to use the words of Blackall, "the congluable part of the blood readily passes off by the kidneys, its effects are equivocal and even hazardous." It is unnecessary to add, that mercury is also improper during very considerable arterial excitement. All the benefit derivable from mercury in those cases of the disease in which its administration is proper, may be obtained by merely putting the system gently under its influence, without inducing a profuse salivation.

Blisters, which are rather a doubtful remedy in external dropsy, are certainly, in most cases of dropsy of the belly, particularly in their earlier stages, a remedy from which much good is to be anticipated. In those cases dependent upon a congested or inflamed condition of the viscera, or of the peritoneum, after suitable direct depletion by the lancet and leeches, a blister applied over the diseased organ or to the anterior portion of the abdomen, by aiding in the cure of the affection upon which the dropsy depends must have no little effect in facilitating the removal of the latter also.

Frictions over the abdomen have been recommended as a very effectual means of dispersing the swelling. Thus, frictions with olive oil will frequently re-establish the urinary discharge with considerable promptness. It is now generally agreed, that the oil is useful only to prevent excoriation. Besides the olive oil, frictions with various medicated oils and liniments have likewise been proposed; but we believe frictions with the hand, dipped in oil; with a soft cloth, or with a flesh-brush, to be equally efficacious to any other plans proposed; while, a circumstance of the first importance to insure their success, they may be repeated much more frequently, and at shorter intervals, without danger of inducing excoriation.

In ovarian dropsy, we have but little hopes of obtaining much good from any plan of treatment. Particular

symptoms are to be palliated by appropriate means. Costiveness is to be avoided by a due attention to the bowels, and when necessary, by occasional laxatives. Should the enlarged ovary pressing upon the neck of the bladder, prevent the free discharge of urine, the introduction of a catheter becomes necessary; while pains are to be relieved by leeches, fomentations and blisters; or when of a hysterical or spasmodic nature, by opium.

In dropsy of the belly, we have it in our power, when the water is contained in the peritoneal cavity, to evacuate it at once by the operation of tapping, and when internal remedies have been productive of no success, or when the swelling of the abdomen has arisen to such a height as greatly to incommode the patient, or impede much his respiration, this operation should certainly be performed, and it will never fail greatly to diminish the patient's sufferings, by removing the effects resulting from the weight and pressure of the accumulated fluid, and by this means may prolong his life for many years. It has been asserted, that when even the patient and his physician have been deprived of every hope of a cure being effected, and have resorted to the discharge of the fluid by tapping, with the view merely to gain a few days of ease, a complete cure has been obtained, the dropsy disappearing completely after the operation. In general, however, tapping must be considered only as a palliative measure, the instances in which it has been followed by a radical cure, being extremely rare. When tapping has been decided upon, and a fluctuation is distinctly felt, it can not be too early performed; nor need we fear again and again to repeat it, should it be demanded by the symptoms. At every operation, the whole quantity of fluid should, if possible, be drawn off, and during its flow, and subsequently, a gentle and uniform pressure should be made upon the abdomen by an appropriate bandage. Tapping has likewise been proposed in ovarian dropsy, oper-

ating at the most prominent part of the tumour, on the right or left side, according as one or other ovary is affected. As a palliative means, it may be put in practice; very generally, however, the fluid, from its consistency or its being contained in separate cysts, will not pass through the canula, and never is the operation to be expected to effect a cure.

DROPSY OF THE CHEST.

In this form of dropsy, the effused fluid is accumulated within the thorax, either in the cavities of the pleura, or within the cavity of the pericardium, in immediate contact with the heart. It is so difficult to distinguish by any constant or striking symptoms between these two varieties of dropsy of the chest, that we have thought it useless to consider them separately.

Dropsy of the chest is marked in its commencement by few symptoms calculated particularly to direct the attention of the patient to the nature of his disease. Soon, however, he experiences some difficulty in respiration; anxiety at the pit of the stomach; frequent shivering; a slight, dry cough, or some catarrhal symptoms, and an indisposition to bodily exertion. In most cases, during convalescence from some disease of the chest, the patient becomes affected with difficulty of breathing; cough; sense of weight about the stomach, and an augmentation of these symptoms in the recumbent position, indicating that effusion of a fluid has taken place in the chest. The difficulty of breathing is always augmented by exertion or motion of any kind, or when the body is in a horizontal posture. The sleep is painful and disturbed with frightful dreams, and frequently it is interrupted by a sudden start, or a painful feeling of suffocation, which gradually decreases towards morning. The sense of weight at the pit of the stomach or along the insertion of the diaphragm, is particularly experienced when the patient is erect. A dropsical swelling of the extremities, but especially of the feet, is

perceptible towards evening. The countenance of the patient assumes a livid appearance, intermixed with a deadly paleness; many times he complains of a numbness of the left arm; his eyes have an anxious stare; frequently the inferior eye-lid is swollen; his pulse becomes weak and irregular, sometimes intermittent; his throat is dry, and the tongue thickly coated; there is much thirst, frequent palpitations of the heart, and the urine is small in quantity and high coloured. As the disease progresses, the difficulty of breathing becomes peculiarly distressing, and the patient can obtain no rest but in an erect posture. The difficulty of respiration is very generally greatly augmented also, when the patient attempts to lie upon the side opposite to that upon which the effusion has taken place. The face and extremities are cold; the cough becomes moist, and the expectoration now and then bloody. As all the symptoms which we have now enumerated may, however, be produced by other diseases than the effusion of a fluid in the cavity of the chest; as, for instance, by various organic diseases of the heart, by asthma and affections of the larger blood-vessels, some other distinguishing symptoms of hydrothorax have been pointed out by various physicians, to a review of which it becomes necessary that we should pay a few moments' attention. A dropsical swelling of the external parts of the chest, when it occurs, establishes with considerable certainty the presence of effusion within the thorax. This symptom is, however, observed but rarely. Cullen and other physicians of extensive practice, never noticed it; and Hoffman regards it as the indication also of an extensive collection of pus in the chest.

The elevation or projection of the ribs is a more frequent symptom of hydrothorax, particularly in its advanced stages, or when the fluid is considerable and occupies but one of the pleura; the chest is then more swollen, more rounded on the side of the effusion, and the intercostal spaces become

enlarged by the gradual separation of the ribs. The swelling of the chest is occasionally attended also with dropsical swelling of the integuments, when the existence of effusion within is still more evident; nevertheless, the same phenomena may be produced by the presence of pus in the cavity of the chest.

Various percussions and examinations of the chest with the hand and ear have been put into practice, with the view of detecting the presence of the contained fluid.

By applying the hand to the sides, and using a slight degree of percussion, we are sometimes, but not always, able to distinguish a degree of fluctuation; this is said to be rendered more evident when the patient places himself upon his hands and feet.

It was long since directed that the chest of the patient should be struck in different parts with the flat of the hand or the points of the fingers united; if the sound produced be that of a cavity filled with air, no effusion has taken place; but if, on the contrary, the sound be similar to that produced in striking a mass of solid flesh, as the thigh or buttock, we may conclude that the cavity of the chest is filled with either serum or pus. If the position of the patient's body be now changed, and the part which had before given the sound as from a solid body sounds as though empty, and the part which had been found natural assumes the former sound, there is no doubt, it is said, that a fluid has been effused in the chest; the very height of which, when the body is erect, it is pretended, may be determined by a frequent and cautious repetition of this mode of examination. There can be no doubt of this difference of sound being easily perceived; but it is rather to be considered as a circumstance confirming the diagnosis drawn from the presence of the majority of the other symptoms than conclusive of itself; for besides the impossibility of determining by it whether the contents of the pleura be pus or serum; the existence of extensive ad-

hesion between the lungs and pleura; a tuberculous condition of the former; aneurism and enlargement of the heart, and various other diseases of the chest or of its contents, may, equally with the effusion of serum into its cavity, destroy the hollow sound, which in a healthy condition of the chest is experienced upon percussion.

By a particular instrument called the stethoscope, we recognize the effusion in the chest, principally by the absence in every other part except at the root of the lungs, of the peculiar sound communicated to the ear by the act of respiration in a healthy condition of the chest.

The presence of an effusion of fluid in the chest is by no means a circumstance incompatible with life, and even tolerable health; so long, at least, as the quantity of fluid is not so considerable as to compress the lungs and interfere with or suspend their functions. Some degree of dropsy of the chest may exist, therefore, without any symptoms leading us to suspect it during the life of the patient; for the same reason too, the march of the disease is generally slow; but when the quantity of the effused fluid is so great as to cause a visible separation and elevation of the ribs, there is but little hope of the patient escaping a speedy death. The difficulty of respiration becomes now intolerable; the patient is under the necessity of constantly retaining the erect posture, with his mouth open and his body inclined to the side on which the effusion is most considerable, while he constantly betrays the utmost anxiety for fresh air; his hands and arms, as well as his face, become extensively swollen; a cold sweat covers a part of his body, until at length he becomes insensible to his sufferings, and sinks gradually into the arms of death.

The continuance and termination of dropsy of the chest, however, depend much upon the nature of the causes to which it owes its origin. These causes are very numerous; many of those already laid down as productive of

general and abdominal dropsy, are occasionally causes also of the variety of dropsy before us. Whatever impedes the circulation through the thoracic viscera, as well as an inflamed condition of the pleura, may give rise to it.

Certain diseases of the heart, such as aneurism of its ventricles or auricles, polypii, concretions in its cavities, augmented size of its parietes, &c. have a considerable influence in the production of dropsy of the chest. The same effect may be produced by an obliteration, dilatation, obstruction or compression of the pulmonary veins, occurring as a consequence of certain chronic affections of the lungs. Aneurism of the aorta, deformity of the chest, various diseases of the lungs, &c. are also occasional causes of this variety of dropsy. Effusion of serum into the chest, to a greater or less extent, is very generally the consequence of long-continued or mismanaged pleurisy, particularly in certain constitutions. An inflamed condition of the liver, as well as obstructions in that organ, may also give rise to the disease. The serum effused into the chest may vary in quantity, from a few ounces to several pounds, so that nearly the whole cavity of the chest appears to be filled with it.

When dropsy of the chest is dependent on or connected with extensive organic disease of the thoracic viscera, the dropsy is necessarily sooner or later fatal; frequently death is preceded by the occurrence of general dropsy; at other times symptoms of general dropsy accompany the disease from its commencement. A spitting of blood has been generally considered as an indication of the near approach of death. The patients frequently perish suddenly from suffocation, even when the more violent symptoms had appeared to assume a favourable change. In the young, and those of a comparatively healthy constitution, when unconnected with organic affections of the heart and large blood-vessels, or when occurring from inflam-

mation of the pleura, dropsy of the chest may, by a proper course of remedies, frequently be removed.

In its treatment, the same general remedies are demanded as in the former varieties; the lancet will probably be more generally required in dropsy of the chest than in either of the other forms of dropsy. To reduce the action of the heart and arteries; to overcome a degree of local inflammation affecting the pleura; or to facilitate the circulation through the thoracic viscera, by unloading them of a portion of the blood with which they are oppressed, both general and local bleeding, particularly by leeches or cups to the chest, will be proper. The indications for the evacuation of blood are to be drawn from the hardness or fullness and quickness of the pulse; the pain and oppression at the chest; the age and constitution of the patient, &c., while the quantity to be drawn, as well as the repetition of the operation, must be decided upon by the extent and continuance of the above general symptoms. It is unnecessary to say, that to derive from bleeding the advantages which in very many cases it is capable of affording, requires no small degree of judgment for the proper management of the remedy, and a careful consideration of all the symptoms of the case, before it is employed or relinquished.

It has been supposed that drastic purgatives are not so well adapted to dropsy of the chest as to general or abdominal dropsy, and hence the cream of tartar and other saline articles have been more commonly preferred. Notwithstanding, however, the general opinion is against the more active purgatives in this disease, yet Dr. Ferriar recommends in its treatment, in the highest terms, one of the most drastic articles we possess, namely, elaterium. The astonishing relief, he observes, which it affords in the difficulty of breathing occasioned by thoracic dropsy, even in persons of the most advanced age, must place it in the first class of remedies for this disease.

Gamboge is with many practitioners a favourite remedy in thoracic dropsy. Dr. Ferriar considers it as one of the least nauseous of our laxatives, and he relates several instances of dropsy in which, when given in combination with the nitrous or vitriolic ether, the article proved peculiarly efficacious. His mode of exhibiting it is, five grains of gamboge and two drachms of vitriolic ether, repeated two or three times a week in some agreeable fluid. He found this prescription to act both upon the bowels and kidneys; and in cases of dropsy in the chest, where, from the quantity of fluid accumulated, there was imminent danger of suffocation, he informs us that he has repeatedly given very prompt relief by the following prescription: gamboge, four grains; nitrous ether, one drachm; tincture of senna, two drachms; syrup of buckthorn and mint water, of each half an ounce, to be repeated twice or thrice a week; the cream of tartar and the following diuretic drops being employed on the intermediate days: namely, oxymel of meadow saffron, oxymel of squills, tincture of tobacco, and nitrous ether, equal parts of each; dose, a teaspoonful in a little water every three hours.

Emetics have been proposed in the treatment of this as well as the varieties of dropsy already treated of. It requires no little tact, however, to discriminate properly those cases in which their operation will be proper and most successful. It must be evident, that where the effusion in the chest is complicated with organic disease of the heart and great vessels, emetics are of doubtful propriety; in other cases, however, they may be employed, and probably sometimes with good effect.

Of diuretics, nearly the whole class have been employed in dropsy of the chest, but by general consent it is acknowledged, that some of these articles are much more efficacious in this form of dropsy than in others. Thus the squill is very generally considered as the diuretic best adapted to the removal

of effusion in the chest. In the early stage of this disorder, remarks Dr. Blackall, medical treatment does a great deal, principally by means of diuretics, and the squill is by far the most powerful of them. According to the same author, it is especially useful in cases attended with oppression of the chest, and with scanty, high-coloured urine, full of sediment and not coagulable: he has seen it also, however, sometimes serviceable in cases in which the urine was partially coagulable. "But," he remarks, "in proportion as the disease becomes more marked by its extreme constitutional characters, inflammation and a weakness of the digestive organs, it fails in its effects or is even injurious."

The squill may be exhibited in substance or tincture, or the vinegar of squill may be employed. Blackall recommends thirty drops of either of the latter, three times a day, gradually increased to forty or fifty drops; as a general rule, it is to be given in as large a dose as the patient can bear without nausea.

In most cases, the combination of squill with nitre and calomel is to be preferred to the article by itself, and in this combination it becomes the best diuretic we can employ.

Various combinations of the squill with other articles are highly spoken of by different writers on the disease. Dr. Ferriar informs us, that in some constitutions the tincture of squill in conjunction with the syrup of buckthorn proves very powerfully diuretic; while Blackall considers the diuretic effects of the article to be increased by the ammoniacal mixture and the vitriolic ether.

Digitalis is another remedy of very considerable efficacy in dropsy of the chest. Dr. Maclean is strongly in favour of its use in almost every case, particularly when occurring in a weak, delicate, irritable constitution, with a thin, soft and smooth skin. During the use of the remedy, the state of the pulse, the stomach, the bowels, and the sensorial function, should be con-

stantly and attentively watched by the practitioner. "If," remarks Maclean, "these be carefully watched, and the medicine withdrawn as soon as any of them are materially affected, I hesitate not to affirm, that no serious inconvenience will ever ensue from it, and that it may be administered with as much safety as any of the more active medicines in daily use." In many cases, the digitalis is increased in efficacy by combining it with the saline diuretics, with the Dover's powder, and with squill.

According to the experience of Dr. Baillie, the most efficacious prescription in hydrothorax is squill combined with digitalis and mercury, in the proportion of one grain of powdered squill, half a grain of digitalis, and five grains of the blue mass, repeated twice or thrice in the course of the day. The alkalies have been highly esteemed remedies in almost all the forms of dropsy: in their favour, we have the testimony of some of the first practical men. Notwithstanding, however, this evidence, we should never trust to them merely on account of their diuretic powers. In many cases of dropsy of the chest, where the disease is accompanied with general weakness or a disordered condition of the functions of the stomach, inducing the formation of an acid in the upper portion of the bowels, by combining with the squill a proper portion of the carbonate of potass, we remove many unpleasant symptoms, and improve greatly the condition of the digestive organs; and it is pretty much to these cases we should be inclined to restrict the employment of alkalies. In some cases of general weakness, in place of adding the alkali to the diuretic we are exhibiting, it may with propriety be given combined with bitters, with opiates, rhubarb or chalybeates, and with good effect.

That in some cases of hydrothorax, opiates may be exhibited with beneficial effect, there can be no doubt. When the disease is accompanied with a convulsive breathing in its advanced stages, a grain of opium and about

half a drachm of Hoffinan's anodyne liquor in a little water, and repeated at short intervals, will be found generally to afford very considerable relief. When, also, the cough is very distressing, disturbing the patient's sleep, and aggravating the leading symptoms of the disease, expectorants, in which opium enters as an ingredient, will occasionally quiet the cough, and enable the patient to obtain some degree of rest; for this purpose, either a combination of one grain of opium, one of ipecacuanha and ten of nitre, or the following, will be best adapted: acetate of squill, one ounce; sweet spirits of nitre, one ounce; sugar, three drachms; laudanum, one drachm; water, one ounce; dose, a tea-spoonful occasionally.

As a means of retarding the progress of the disease, or of seconding our other remedies, setons and issues have been occasionally made use of, applied either to the extremities or to the chest.

The diet in dropsy of the chest should vary according to the symptoms and stage of the disease; being light and moderate in quantity in the earlier periods, especially of those cases attended with symptoms of inflammation in the thorax, and though of a more nourishing quality in the advanced stages, and in cases accompanied with symptoms of general debility, yet one rule must be invariably observed,—namely, that the food be un-irritating and easily digested. So intimate is the sympathy between the stomach and the thorax, that an overloaded or irritated condition of the former can not fail of increasing all the symptoms of disease in the latter.

Brisk frictions of the surface, particularly of the extremities, frequently repeated, have been recommended, and are no doubt frequently of much value in many cases.

As soon as the patient is capable of gentle and regular exercise, particularly by sailing, or riding in a carriage or on horseback, it should be enjoined upon him, care being taken that he be appropriately clothed, and observe

every caution against exposure to damp or cold, and all sudden vicissitudes of weather.

From the earliest ages of our art, it has been recommended to obtain an issue for the fluid effused in the thorax, by an opening made into the cavity of the pleura through one of the intercostal spaces. While this operation is always to be considered merely as a means of palliation in extreme cases, there are many very powerful objections to its common employment. Nevertheless, in cases where, after failure of all the remedies which have been recited, the difficulty of breathing is distressing, and the danger of suffocation imminent, the fluctuation of the water being apparent, or the parietes of the chest being bulged out on the side affected, as a last resource and a means of alleviating the misery of the patient and prolonging his life, the operation may be attempted.

MEASLES.

The measles is an eruptive disease, arising from a specific contagion, and attended with catarrhal and pneumonic symptoms, from which few individuals of the human race are exempt, but which ordinarily attacks them only once in the course of their life. As it is generally children who are affected with measles, and as it is a disease accompanied with very dangerous symptoms in many cases, we shall, therefore, give a pretty full description of its symptoms and treatment.

When the contagion of measles has been received into the body, the patient, for some time, feels indisposed at intervals, and then appears well again. At last, a shivering and coldness come on, soon followed by increased heat, thirst, and other feverish symptoms, with sickness, loss of appetite, vomiting, and in some rare cases, with convulsion-fits; but these are far less common than in the commencement of small-pox. Sometimes the fever is sharp and violent from the first; sometimes it is more obscure and mild, but it generally is very violent before the

measles show themselves on the skin, which generally happens on the fourth day from the attack of shivering or the cold stage of the fever. From the very commencement, there are all the symptoms of catarrh, hoarseness, a very frequent rough cough, difficulty of breathing, swelling and redness of the eyes and eye-lids, and a running of sharp acrid matter from the eyes and nose. There is often, also, severe headache, throbbing of the temples, and great drowsiness. The eruption generally appears on the fourth day, first about the face and under the chin, and then on other parts of the body. It first appears in small red points; but a number of these become joined together, and form themselves into semi-circular patches, in the intervals of which the skin is not very much different from its natural appearance. It is by this, that the eruption is distinguished from that of scarlet fever, where the skin is uniformly of a bright red colour. The eruption is slightly prominent, and appears a little rough to the touch. It continues pretty bright for two days, but about the third it fades a little, and becomes of a brownish hue; and in a short time, about two days more, it totally disappears, and a powdery scaling off of the outer skin takes place. A looseness of the bowels occasionally comes on when the eruption is subsiding. The fever in cases of measles is sometimes of alarming violence, and it does not, in general, subside when the eruption comes out; on the contrary, its violence is occasionally increased until after the fading of the eruption. Whether the fever subsides or not, the cough commonly continues with great severity for a considerable time; and the difficulty of breathing increases, and is accompanied with pain and other symptoms indicating a degree of inflammation of the chest. This tendency to inflammation of the chest and disorder of the lungs, is what chiefly renders the measles so troublesome and dangerous a disease; and in too many cases brings on a protracted ill-

ness, or causes sudden death, when the disease appears to be going entirely off.

The danger in measles is owing to the tendency they have to end in acute catarrh or in inflammation of the lungs; but in some rare epidemics, they have been known to assume from the very commencement a peculiarly malignant form. The time when measles generally make their appearance as an epidemic, is about the month of January, and they continue till some time in May; though, from particular circumstances, there may be cases at any season; and, from the numbers that generally take them in one epidemic, the measles are not very prevalent each successive year, but intermit for a year or two, till a new succession of subjects predisposed to the disease comes into existence.

It is a matter of very great importance to regulate the temperature in which the patients are kept during an attack of the measles. Happily, the absurd and destructive practice of loading the patient with bed-clothes, and heating his system by hot rooms and large fires, and by giving hot teas, strong aromatics, and stimulants, is now almost universally exploded; and in no class of acute diseases has a return to a better plan been more beneficial, than in those attended with an eruption on the skin. The safe and rational plan, is to keep the patient labouring under an attack of measles, in an *equal moderate temperature*, avoiding all unnecessary, artificial, and external heat, and taking care that the patient, on the other hand, be not exposed to cold. In the early stages of measles, the fever is sometimes of the most alarming character, and requires the abstraction of blood from the arm, and to a considerable amount; but in general, the symptoms are light, and it is not necessary to do any thing more, than to supply the patient plentifully with mild diluent drinks, to administer a gentle laxative, and to sponge the head and temples with tepid vinegar and water; or if the eyes be much affected, to apply tepid milk and water

to them. If the oppression and difficulty of breathing be great, before the eruption comes out, it is of great service to put the patient into the warm bath, and to repeat this once or twice, if the urgency of the symptoms continues; in general, this helps out the eruption, and relieves the patient.

Some physicians of great ability, recommend an emetic, as always useful at the commencement of the disease, and the practice is worthy of attention. After it has operated, a purgative medicine may be given and repeated, so as to preserve the bowels in a lax state, as, Epsom salt, one ounce; tartar emetic, two grains; water, eight ounces; dose, a table-spoonful every two hours. The diluting drinks recommended in inflammatory diseases, such as barley water, tamarind tea, and the like, should be taken freely; and all animal food and stimulating liquors must be avoided.

But when the symptoms are severe, and there is a good deal of pain in the chest, with difficulty of breathing, blood-letting must be resorted to; as, in addition to the object to be fulfilled in mild cases, we have here to prevent or remove inflammation in the chest. It is seldom, however, that these symptoms come on till the eruption is going off, and the abstraction of blood should never be resorted to early in the disease, unless it be clearly necessary. Under the circumstances just stated, of great difficulty of breathing, and an unusually hard pulse, from six to eight ounces of blood should be taken from the arm, and if these symptoms continue little or not at all relieved by the first evacuation, the operation should be repeated to the same extent. The application of leeches to the chest is often advisable, in addition to the general bleeding. After the loss of blood, a blister should be applied over the chest, while the purgative solution with diluting drinks, and a low diet, are resorted to, as just advised. In the severer forms, the diet, of course, must be very spare and low, and the purgative medicine may be administered a

little more freely than is necessary during the milder attacks.

With regard to exercise, if the patient find himself inclined, from the commencement, to remain in bed, he should not be prevented; at the same time, there is no occasion to confine him to it against his inclination. In all cases, towards the period of the eruption, he feels fatigued, and averse to motion. Whether he be in bed or not, extremes of heat and cold are equally to be avoided. If cough be troublesome, it will be useful to breathe the steam of warm water, not through an inhaler, but over a large basin, with the head covered with a flannel large enough to hang over its edges; by this means the inflamed eyes will also have the benefit of the relaxing vapour.

If the oppression of the chest, pain, and hard pulse, should return, as they are apt to do on the disappearance of the eruption, blood-letting or cupping must again be had recourse to, however freely they may have been employed before.

Opium should never be given to relieve the cough in measles, as it generally fails in effecting this object, and always increases the fever and restlessness. One of the best medicines for this purpose, after the use of the lancet has been carried to a proper extent, is the following: Extract of hemlock and extract of henbane, of each, half a drachm; ipecacuanha, in powder, 12 grains. Mix, and divide into twelve pills; one to be taken three times a day. From half a pill to a pill may be given to children above a year old, and below ten years.

In measles, a spontaneous looseness proves the most favourable crisis.—When moderate, it should not be interfered with; and even when it appears excessive, only the mildest astringents should be given in small doses, so as to lessen, but not altogether to remove it.

In case the measles should suddenly disappear, and symptoms of an alarming character present themselves, proper measures should be immediately resorted to, in order to restore the erup-

tion to the skin. The patient must be placed in a warm bath, blisters should be applied to the inside of the thighs or legs, and to the chest, and a little warm lemonade may be given frequently, with ten drops of antimonial wine every hour, which may be taken either by itself, or in warm balm tea.

Some of the most troublesome consequences of measles, are a hoarseness, cough, shortness of the breath, and inflammation of the eyes. The hoarseness is often best removed by astringent gargles, when there is no fever nor difficulty of breathing. For the cough, we would recommend the pills above prescribed. A gentle purgative frequently relieves the shortness and difficulty of breathing; and, if that fail, a blister to the breast, frequently repeated, or the tartar emetic lotion rubbed freely into the same part, are the best means. To moderate and remove the inflamed state of the eyes, exposure to the light should be avoided, and the eyes are to be frequently washed with a lotion, composed of ten grains of sugar of lead, one ounce of water, and half an ounce of rose water. After the inflammation of the eyes has been subdued by means of quietude, low diet, and exclusion from the light, and the complaint assumes an indolent character, one of the most efficacious remedies is the diluted ointment of nitrated quicksilver, or citrine ointment.

It is, however, to be remarked, that blood-letting sometimes removes, most promptly, the symptoms remaining after measles. Thus it will remove cough, although unaccompanied by fever, or the other symptoms denoting inflammation. It may, therefore, be tried to a proper extent, when the previous means fail to remove the cough, difficulty of breathing, and other symptoms above mentioned.

It will be necessary cautiously to avoid exposure to cold, for some time after the patient has recovered from an attack of measles.

SCARLET FEVER.

Scarlet fever is a febrile affection,

which derives its name from the bright scarlet eruption with which the whole surface of the body becomes covered. The disease varies considerably in the violence and danger of its symptoms in different cases. It may appear under a very mild form, without any disease of the throat, or accompanied with very considerable pain and swelling of the fauces, and occasionally, when it occurs as an epidemic, the affection of the throat assumes a very dangerous and malignant character. Scarlet fever is propagated by a specific contagion, like small-pox or measles, and, like them, is believed by the best observers to attack a person only once during life; though the apparent exceptions to this remark are more numerous in scarlet fever, than in the other two diseases above mentioned. On the third or fourth day after exposure to the contagion of scarlet fever, a feverish attack occurs; and about the second day of this fever, a bright scarlet rash appears on the surface of the body, as well as within the mouth and about the fauces.

The milder form of scarlet fever is distinguished by the rash, with a moderate degree of fever, and with very little affection of the throat. The rash first appears in innumerable red points about the neck and face, and by the next day they are seen over the whole surface of the body. About the fourth day, the eruption is at its height, and on the fifth, it begins to decline. The surface of the fauces and mouth appears red, and little red points appear on the tongue, rising up through the white crust which covers it; and when this crust comes off, the whole surface of the tongue is red and sore, and the points are still prominent, giving to it an appearance like that of a strawberry. There is sometimes considerable swelling of the face, and of the throat.

This constitutes the mildest form of the disease; one, indeed, so mild as hardly to require the aid of medicine; but one, nevertheless, in which, by mismanagement and officiousness, the feverish symptoms may be considerably increased, and some inconvenience,

if not danger, induced. To prevent this, the patient should be kept cool and quiet; should not be over-loaded with bed-clothes; his diet should be sparing, and cooling drinks and mild laxatives should be recommended.

In other cases of scarlet fever, the febrile symptoms at the commencement are more severe; there is a sensation of stiffness and pain on moving the neck, and it is also painful to swallow; the voice is thick, and the throat feels rough and straitened. The heat of the surface rises in a most remarkable manner: not only to the sensations of the patient or observer does the heat seem greater, but the thermometer shows it to be 108° or 110° ; that is, more than ten degrees above the natural standard. There is sickness, headache, great restlessness, and delirium; the pulse is frequent, but generally feeble, and there is great languor and faintness. The tongue is of a bright red colour, especially at the sides and extremity, and the rising points are very conspicuous. The rash does not appear so early as in the milder form of scarlet fever, and is seen in patches, very frequently about the elbows. Sometimes it vanishes, and appears again, at uncertain times, without any corresponding change in the general disorder. When the rash is slight, or goes off early, there is little scaling off of the skin; but in severer cases, large pieces of the skin come off, especially from the hands and feet. The swelling and inflammation of the throat sometimes go off without any ulceration; but, at other times, slight ulcerations form on the tonsils, and at the back of the mouth; and whitish specks are seen, intermixed with the redness, from which a tough phlegm is secreted, which clogs the throat, and is very troublesome. This kind of scarlet fever is not unfrequently followed by great debility, or the occurrence of other diseases, as inflammation of the eyes, or dropsy, or an inflammatory state of the whole system, or by water in the brain. In other cases, the throat is greatly swollen, and within assumes

a black colour; the patient discharges from the mouth and nostrils a dark, putrid sanies, occasionally mixed with dark-coloured blood; the breath is extremely offensive; the pulse small and quick, and the face tumid and of a leaden or violet hue; and the patient frequently dies from suffocation at an early period.

In regard to the treatment of scarlet fever, it is in general proper to begin with giving an emetic, especially if we at all suspect the stomach to be loaded with undigested matter; and we are very soon after to exhibit laxative medicines, which are truly one of our most important remedies in this disease. A dangerous and exhausting looseness, which takes place towards the fatal termination of ill-managed scarlet fever, for a long time excited great fears and prejudices against the use of laxative medicines in this disease; but better observation has convinced physicians, that so far from being detrimental, laxative medicines, early and prudently administered, have the best effect in mitigating the disease, and in preventing the collection of that putrid and offending matter in the bowels, which is so sure to produce wasting diarrhoea when it is suffered to accumulate. To lessen the burning heat of the skin, nothing is at all comparable to the free application to it of cold water, by affusion, which, when employed prudently and at the proper time, cools the surface; and from a state of the most painful and restless irritation, restores the patient to comparative ease and tranquillity. It is in scarlet fever that the powerful remedy of the cold affusion has maintained its ground; in all cases accompanied with increased and uniform heat and dryness of the surface, it should never be omitted, as its salutary effects are speedy and certain, and nothing else, with which we are acquainted, is capable of affording such immediate and permanent relief. It not only lowers the heat of the skin, moderates the violence of the fever, and calms the general excitement under which the patient labours, but it has

also the best effect in shortening the disease; and in some cases, where a long and tedious illness might have been expected, the cold affusion has seemed to put a very early period to it. If the timidity of the patient's friends, however, causes them to object to the cold affusion as too formidable, they must not object to the washing or sponging of the whole body with cold water, or vinegar and water; and till the heat of the body is reduced by these means, it is in vain that we give internal medicines to procure perspiration, or to allay restlessness and induce sleep. After washing, it is not at all unusual for the formerly harassed patient to fall into a gentle and refreshing sleep, and a mild and breathing sweat to come out over the whole body. This supersedes the necessity of sudorific and anodyne medicines; and provided we attend to the bowels, keep away stimulant and nourishing food, give the drink cold or acidulated, and employ proper gargles for the mouth and throat, very little other medicine will be required in a large number of cases.

The inflammatory state of the system which often follows scarlet fever, is not unfrequently accompanied with a swelling resembling dropsy; but we are not to regard this last as a sign of debility, or to be deterred in consequence from the use of very active remedies. Bleeding to a considerable extent is necessary, both by leeches, and from the arm, if the patient be old enough; brisk purgatives are to be freely administered, and the inflammatory and dropsical tendency to be combated by the use of foxglove and other diuretics. When the inflammatory action has subsided, and the dropsy appears to be the principal malady, we are to give tonic medicines and nourishing diet, along with such medicines as increase the flow of urine. If there seems a determination to the head, our practice must be decided and active, and consist in bleeding and purging according to the urgency of the symptoms, together with leeches

and cold applications to the head and mustard poultices to the ankles.

In the more malignant forms of scarlet fever, the symptoms are more rapid and severe, the general system is much oppressed, and the throat and neighbouring parts are affected with rapidly spreading ulcerations. It is this which has obtained the name of *putrid sore throat*. This form of scarlet fever begins like the preceding, but in a day or two shows symptoms of peculiar severity. The rash is usually faint, and the whole skin soon assumes a dark or livid red colour. The heat is not so great nor so permanent as in the other varieties; the pulse is small, feeble, and irregular, there is delirium and coma, with occasional fretfulness and delirium. The eyes are suffused with a dull redness, there is a dark red flush on the cheek, and the mouth is incrustated with a black or brown fur. The ulcers in the throat are covered with dark sloughs, and surrounded by a livid base; a large quantity of tough phlegm collects in the throat, which impedes the breathing, occasions a rattling noise, and increases the pain and difficulty of swallowing. An acrid discharge comes from the nostrils, producing soreness, chaps, and even blisters. There is severe diarrhœa, spots on the skin, bleeding from the mouth, bowels, or other parts, all of which portend a fatal termination to the disease. Sometimes the patients die suddenly about the third or fourth day; at other times in the second or third week; gangrene having probably arisen in the throat or some part of the bowels. They who recover have often long illnesses from the ulceration spreading from the throat to the neighbouring parts, occasioning suppuration of the glands, cough, and difficulty of breathing, with hectic fever.

In treating this variety of scarlet fever, the advice of Dr. Willan, and Dr. Withering, cannot be too strongly recommended to the reader's confidence and attention. The former able physician remarks, "the best mode of practice here is to administer gentle

emetics repeatedly during the first stage, according to the plan recommended by Dr. Withering, in a judicious treatise on this disease." An emetic should be given as soon after the attack as possible, and repeated, if necessary, every morning for several days. When the symptoms of fever and inflammation run high in the beginning, it will often be of the greatest service to draw off some blood from the arm or by leeches applied round the throat, immediately after the operation of the first emetic. Vomiting in this disease not only tends to take off the dry burning heat of the skin by relaxing it, but unloads the throat and fauces of the fluids that gorge and distend them. Both the above distinguished physicians had great experience in the treatment of this malady, and trusted almost entirely to full, free, and repeated emetics, to conduct it to a favourable termination, in those cases in which the symptoms were not highly malignant. Dr. Willan says, when an emetic wholly fails in its operation, the patient seldom recovers.

Mild aperients are likewise necessary, and a combination of calomel and rhubarb is generally the most useful. A grain of calomel, and eight grains of powdered rhubarb, may be given to a child of ten years old, every other morning.

At the commencement of the disease, cold effusion or ablution is strenuously advised by the most eminent physicians. It must not be resorted to except where the heat of the skin is great and equal throughout the whole body, and without perspiration, and then it is often of the greatest service in moderating the subsequent symptoms. The patient may be stripped naked, and cold water be dashed over him every evening for the first three or four days; or the whole body may be quickly sponged with cold water. The refreshment is often instantaneous, and operates like a charm.

Antiseptic gargles should be frequently employed, and the room be often and freely fumigated with the

nitrous acid vapour, or sprinkled with the chloruret of lime. A very useful gargle may be made by mixing a drachm of muriatic acid with seven ounces of barley water, and an ounce of honey of roses, or we may employ a gargle made by dissolving from five to ten grains of alum in water. In young children, gargling is impossible; hence their throats must be freely washed with the preparations here directed several times a day. When the state of the throat is bad, these applications should be made strong, and be frequently used. In many cases, the free application of lunar caustic to the ulcers in the throat has been found highly beneficial.

Towards the decline of the disease, it will generally be advisable to administer mild strengthening medicines, of which a decoction of bark with the muriatic acid is the most appropriate and effectual. Two ounces of the decoction, with five or six drops of the acid, and a drop or two of laudanum, may be given to a child of twelve years old, three or four times a day. Or instead of this, the carbonate of ammonia may be administered. Two drachms of the carbonate of ammonia may be dissolved in five ounces of water, of which two tea-spoonfuls are to be taken every two, three, or four hours, in a little water, according to the urgency of the symptoms.

In the beginning, the diet should be spare and mild, because the inflammatory symptoms then run high; but afterwards those of debility prevail, when the food should be nutritious, but moderate in quantity, consisting of jellies, preparations of arrow-root, sago, oatmeal gruel, and the like. If the symptoms are malignant towards the decline of the disease, the throat being deeply affected with spreading foul ulcerations, the bark, acids, together with a light but nourishing diet, must be freely given.

As scarlet fever is one of the most contagious of diseases, it is highly necessary, where many individuals live together, as in families and schools, to

make a separation between the infected and the sound, as soon as the disease appears. In boarding-schools, there should always be apartments in which children who are ill, especially of infectious disorders, should be kept. If children, on the very first appearance of disease, be sent to the sick room; if there be no unnecessary intercourse between them and the well; if there be proper attention to ventilation and cleanliness; if the attendants be careful to wash their hands, and be a little in the open air before they approach the rest of the family, there is every reason to hope that the infection will not spread. The proof of this may be found in the experience of medical men, who rarely, if ever, are transporters of contagious diseases. All alarm and agitation should be repressed; and even fumigation, as tending to excite apprehension, may be dispensed with, provided the utmost care be taken to produce a thorough ventilation through the house. How long after the disease has ceased it may be communicated, is uncertain; it has been known to be given by a patient a fortnight after the rash had disappeared; and Dr. Bateman says there is little doubt, that so long as the least scaling of the skin continues, the contagion may be propagated.

Dr. Hahnemann, of Leipsic, has asserted nightshade to be a preventive of scarlet fever; and, since the year 1818, several practitioners in the north of Europe have repeated his experiments, and they find them founded in truth. The first of these, Dr. Brendt, of Casttrin, affirms, that all who employed this remedy escaped the infection; and his account is corroborated by Dr. Muhrbeck, of Dearmin, in Western Pomerania, who says he has used it for seven years, and with equal success: he administered it to all those who dwelt in the houses where the disease prevailed, continuing its use until a falling off of the outer skin had taken place in those attacked. Dr. Dustenbourg, of Warbourg, has also published an account of a series of experi-

ments, confirming these statements: and several subsequent memoirs have appeared, all equally corroborative of this virtue in the nightshade. The formula generally recommended is, a solution of two grains of the extract of nightshade in an ounce of any distilled water; and to children from one to ten years of age, from one to five drops of this solution is given four times a day; from ten years of age and upwards, from six to ten drops is given, also four times in the twenty-four hours. It will not be necessary to continue it longer than two or three weeks.

SMALL-POX.

The universality of small-pox, and the severity of its symptoms, rendered it formerly an object of extreme interest, especially to parents; and although from the discovery of cow-pox its ravages on life and beauty have been less general and fatal, it must still remain a matter of importance accurately to distinguish and successfully to treat it, in consequence of its occasional occurrence as an epidemic.

There are two forms assumed by small-pox, termed by physicians *distinct* and *confluent*, and popularly, though with less accuracy, a *good* and *bad* kind; which are so varied in their symptoms and general termination, as to require a separate description.

In the *Distinct Small-Pox*, the patient is seized with coldness, or shiverings, which soon abate, and are followed by a hot stage, which lasts for two or three days: during which, children are liable to sickness and vomiting, to starting in their sleep, or to epileptic fits; and adults are disposed to sweating. Towards the end of the third day, the eruption appears, and increases during the fourth day. It commonly appears first on the face, then on the lower parts, and is completed over the whole body on the fifth day. The fever commonly abates upon the coming out of the eruption; the sickness, vomiting, fits, and other oppressive symptoms, go off; and the

patient is, for the time, free of uneasiness. The eruption appears in small red spots, hardly rising above the skin, but which by degrees form pimples. On the fifth or sixth day, a small vesicle, containing a colourless fluid, appears on the top of each pimple. These get broader on the seventh day; and about the eighth, are raised into round pustules. These pustules are surrounded with a circular inflamed border; and as they increase in size, about the eighth day, the face is considerably swelled, and the eye-lids are sometimes completely closed. The matter in the pustules now becomes thick and white, or yellowish, exactly resembling the matter of an abscess. On the eleventh day, the swelling of the face subsides, and the pustules appear quite full. On the top of each, a darker spot appears; and at this place, the pustule, on the eleventh day, or soon after, is spontaneously broken, and a portion of the matter oozes out; in consequence of which the pustule is shrivelled and subsides; while the matter oozing out, dries, and forms a crust upon its surface. Sometimes a little only of the matter oozes out; and what remains in the pustule becomes thick, and even hard. After some days, both the crusts and the hardened pustules fall off, leaving the skin which they covered of a brown red colour; and it is only after many days, that the skin in these places resumes its natural colour. In some cases, at the parts on which the pustules were seated, the skin is destroyed, and a small pit or hollow is left. This is the course of things on the face, and successively, the pustules on the rest of the body take the same course. On the tenth and eleventh days, a swelling arises in the hands and feet, but this goes off as the matter ripens. When the pustules on the face are numerous, there is some degree of fever about the tenth and eleventh days; but in distinct small-pox, it soon abates. An uneasiness in the throat, with a hoarseness of the voice, comes on about the sixth or

seventh day, and much saliva flows from the mouth. This soon becomes thick and tough, and being with difficulty spit out, is productive of great uneasiness. The inside of the mouth and throat has numerous pustules; and in all probability, the whole internal surface of the bowels is affected in the same manner. In the apartment of those affected with small-pox, there is in many cases a strong, peculiar, and nauseous smell, which remains even for months after the disease has entirely subsided. When the pustules blacken, the whole appearance is very loathsome, and presents a striking contrast to the blooming health and beauty which existed but a few days before.

The *Confluent Small-Pox* is marked by the greater violence of the feverish symptoms on the first attack, by the strength of the convulsions, which sometimes destroy the patient even before the eruption appears; and by the very great number and clustering together of the pustules, especially on the face. After the eruption appears, the fever abates a little, but never goes off entirely; and soon after returns with severity, and continues through the whole course of the disease. The vesicles appear sooner on the tops of the pimples; they are not of a round figure, but irregular; and numbers of them run together, forming large patches. The matter does not become thick and yellow as in the distinct small-pox, but the vesicles appear flat and shrivelled; and where the skin is to be seen, it is pale and flaccid. The secondary fever about the eleventh day is renewed with considerable violence.

It is not any difference in the contagion, or in the matter inserted, if the disease be communicated by inoculation, that causes the difference in the malignity of the disease; as it not unfrequently happens, that a child with small-pox of a very bad kind, imparts the disease to another, who takes it in a very mild and favourable way; and the reverse of this also very often happens. The cause seems to be in the

state of the constitution receiving the infection.

After the small-pox has gone off, there is great tendency to boils and inflammatory symptoms in different parts of the body; and, like the measles, it often calls into energy various unhealthy actions, producing swelling of the glands of the neck, inflammation of the eyes, and the like. Many lose their sight by injuries done to the eyes, during the inflammatory period of the disease. Another unpleasant consequence is the pittings which occur after small-pox, totally disfiguring the countenance, and altogether altering its expression.

In the treatment of small-pox, we are not to expect the sickness, vomiting, heat, thirst and fever, which occur before the eruption appears, to be entirely prevented by any class of remedies or plan of treatment; but they may certainly be very much alleviated, and their influence on the subsequent disease much diminished. One very alarming symptom, especially in children, is the occurrence of convulsions. This symptom, as well as the very severe feverish ones, used to be much aggravated by the hot regimen formerly in vogue; and they are materially alleviated, or even prevented, by the free admission of cold air, and by tepid or even cold bathing. The same heating plan was undoubtedly the cause of the frequent occurrence of confluent small-pox, so general under that practice; by which such numbers lost their life, or their eye-sight, and were otherwise so much disfigured. It is found that a cooling plan of treatment is by far the best, in the early stages of the disease; that it renders the eruptive fever moderate, and prevents many of the inflammatory and putrid symptoms which would otherwise occur afterwards. So confirmed is it by experiment, that the confluent nature of the small-pox is very much occasioned by heat, that on any particular portion of the body we can, by covering it with plasters, bring out a more plentiful crop of pustules than on others; and

since the more rational and cooling plan of treatment has been in use, fewer persons appear with the numerous pits and seams that formerly were left, both on the face and other parts of the body. In an adult person, if the fever be very violent, it will be proper to admit cold air very freely, to give purgative medicines and cooling drinks; and in those of a full and plethoric habit, blood-letting will be necessary. Dr. Currie, of Liverpool, employed the affusion of cold water, with the effect of evidently rendering the disease milder. The giving of an emetic at the commencement of small-pox is a good practice, both by its determining to the skin, and freeing the stomach and first passages from undigested aliment, which would aggravate future symptoms. The irritation during the ripening of the pustules is often so great, that we are compelled to allow anodyne medicines, taking care to prevent costiveness by laxative medicines and clysters. For the swelling of the throat and the salivation, we apply blisters externally, and employ cleansing gargles of various acids, and preserved fruits. When secondary fever occurs in small-pox, it is to be treated by purgatives, cool regimen, and prudent blood-letting. The convalescence is sometimes very tedious; and like measles, small-pox excites scrofula and other disorders of the constitution. Sometimes large boils form in different parts of the body; these are to be treated with poultices and the usual dressings; and in many cases these boils, even when large and painful, may be considered as salutary, and having a tendency to diminish unhealthy action in the other parts of the body. No means have yet been devised to prevent the pitting left by small-pox.

COW-POX.

The cow-pox is an eruption of a vesicular nature, which arises from the insertion of a peculiar matter into the system, either at a scratched or an abraded part. As this matter is obtained from an eruption on the teats

and udders of cows, the disease produced is called *cow-pox*; the matter is frequently denominated *vaccine* matter, and the whole affair, inoculation and its consequences, is called *vaccination*.

About the third day after the insertion of the virus of cow-pox, either by puncture or a slight incision in the arm, a small inflamed spot may be observed in the part where the inoculation was performed: next day, this spot appears still more florid, especially if the person be warm; and by passing the point of the finger over it, a degree of hardness and swelling in the part is readily perceived. On the fifth day, a small pale vesicle occupies the spot where the inflammation was, and the affection begins to assume the characteristic appearance of cow-pox. In place of an inflammation, extending around the base of the vesicle, at this period, as is common in small-pox and most other pustular diseases, the whole has a milky white appearance. The vesicle is now turgid, but evidently depressed in the centre, while the edges are considerably elevated. For the next two days, the vesicle increases in size, and retains the same character; so that by the seventh, it has acquired very considerable magnitude, and is of a circular form if the inoculation was performed by a puncture, or of an oblong form if done by an incision; but in both cases the margin is regular and well defined, while the centre, becoming still more depressed, and a small crust forming there, and the edges becoming more turgid, give the whole a very particular appearance and character, which may readily serve to distinguish this affection from every other.

The structure of this vesicle, as may be perceived at this period, is singular, and very different from the structure of the pustule which occurs in small-pox. In small-pox, the whole fluid of the pustule is contained in one entire or undivided cavity, and may be all readily evacuated by one small puncture. In cow-pox, however, it is very different; for here the vesicle is greatly subdivided, or is composed of many

cells, the whole somewhat resembling a honeycomb, with a general covering from the cuticle.

About the eighth day from the time of inoculation, inflammation begins to appear around the base of the vesicle. This increases for two, or perhaps three days more; and when at the height, the inflamed part is in general quite circular, and from half an inch to two inches or more in diameter. This inflamed circle, or areola, acquires an erysipelatous brightness; and the whole, more especially the part contiguous to the vesicle, feels very hard and tense. At this period also, the vesicle still retains the concave appearance; the crust in the centre has considerably increased in size, and begins to assume a dark or brownish colour, while the turgid edge assumes more of a shining appearance, as if the contained fluid were passing into a purulent state. About the eleventh day, the vesicle has attained its greatest magnitude, and then the surrounding inflammation and hardness begin to abate; and it is curious to observe, when this takes place, that the redness generally disappears first from the neighbourhood of the vesicle, and thence gradually towards the edge of the areola, often leaving at the last a complete but slender florid ring or circle of inflammation, marking the circumference of the faded areola, the inner part having changed to a dingy yellow. The fluid in the vesicle, which was before very thin and transparent, is now more viscid and slightly turbid; and, after this period, the whole is quickly converted into a smooth, shining, and somewhat transparent dry crust, of a dark brownish or red colour. This crust, unless forcibly removed, will remain upon the part for one, or sometimes two weeks, and then fall off, leaving the parts underneath quite sound and entire.

Such, then, is the general course of the affection as it appears at the part inoculated; and, in the greater number of instances, especially in children infected with this ailment, little more is

to be remarked ; in some, however, and particularly in adults, marks of a constitutional affection are common.

About the eighth day from the time of inoculation, the glands in the axilla become a little swelled, occasioning pain and stiffness on moving the arm. Headache, shiverings, a frequent pulse, and other febrile symptoms, take place ; and these have been observed to continue from a few hours to two or more days. These symptoms, however, are so slight and transient, as to require no aid from medicine.

About the twentieth day after the inoculation, the dry, contracted, and black scab, is detached, and leaves a permanent circular scar about five lines in diameter ; the surface being marked with very minute pits or indentations, denoting the number of cells of which the vesicle had been composed.

The affection above described derives the highest value and importance from its operating such a change in the human constitution as effectually and permanently to secure it from the *danger* of small-pox, and almost universally to render it incapable even of receiving the contagion of that formidable and loathsome disease. A fact so wonderful, and a result so beneficial, deserve to be established by the strongest evidence ; and in a learned and inquiring age, a discovery of such vast importance was not likely to be admitted without the strictest investigation. Nearly forty years have now elapsed, since Dr. Jenner, of Gloucester, announced the discovery that has conferred immortality on his name, that cow-pox is an effectual preventive of small-pox ; and in these years, observation and experiment, on the most extensive scale, in every quarter of the globe, have assured us, that with as few exceptions as belong to any research connected with the phenomena of living beings, our confidence may remain unshaken. On a subject like this, in which mankind of every rank and profession are interested, it is peculiarly the province of a professedly popular work, to be full and explicit ;

and we shall, therefore, in the remainder of this article, give a historical account of the progress and present state of vaccination ; we shall state the degree of confidence we are warranted to have in it as a preventive of small-pox, and assign some reasons why it should be universally adopted.

It was long observed, in several of the dairies in England, particularly in Gloucestershire, that an eruption frequently appeared on the udders and teats of the cows, which was communicated to the hands of those who milked them ; and that those persons who had been thus affected, and who never had undergone small-pox, were afterwards incapable of being infected with that disease, either by inoculation or by exposure to the most virulent contagion.

The knowledge of a fact so curious and important, was long confined to those among whom it was a familiar occurrence, till Dr. Jenner examined the subject with care and attention ; and, with the candour and benevolence of an enlightened mind, published it for the benefit of mankind. After satisfying himself of the truth and correctness of the fact, Dr. Jenner, in the year 1798, published an account of this most remarkable affection ; and his description of its causes and effects, aroused the attention of mankind, and the astonishment of the medical world. Extensive and strict investigation was made ; and though many arguments, and some facts, were brought forward, which seemed adverse to the preventive powers of cow-pox, yet its incalculable utility was at last evinced ; and observation and experience furnished evidence enough to satisfy fully the Baillies and Heberdens, the Monros and Gregorys, of Britain, as well as the physicians of the rest of Europe, of India, and America.

When Dr. Jenner began his inquiry, he inoculated with the matter of small-pox many persons who, thirty or even fifty years before, had undergone the cow-pox ; and such persons completely resisted the small-pox. Three persons

had received the cow-pox without any intention, merely by handling the infected animal; but Dr. Jenner inserted, by inoculation, some of the vaccine matter in another person, that he might more accurately observe the progress of the affection. It was remarkably slight, but distinctly marked in all its stages; and having inoculated the person who had undergone it, with small-pox matter, he found that that affection, slight as it was, had completely secured him from taking small-pox. Here, then, was an important discovery, that matter from the cow, intentionally inserted into the body, gave a slighter ailment than when received otherwise, and yet had the same effect of completely preventing small-pox. Dr. Jenner, having inoculated several persons from a cow, took the matter from the human vesicles, thus produced, and inoculated others, and others from them again; thus making it pass in succession through many individuals, and with the same good effects in preventing small-pox. In the many years that have elapsed since these first experiments, cow-pox matter has probably passed through a succession of many thousand individuals, and preserved its properties undiminished. The period of discussion and opposition at first was very short, and the observations and experiments of Jenner and his followers seemed so satisfactory, that cow-pox inoculation was every where practised, both by private practitioners and in public establishments; and this with such success, that from many populous districts all over the world, small-pox was entirely banished; and many medical men, for a great part of their noviciate and early practice, knew only by reading and report that so horrid and loathsome a disease had ever existed.

A discovery of so great and general importance was not to be expected to pursue its triumphant career without opposition. Instances were ostentatiously brought forward of persons who had been vaccinated, and who had taken small-pox in spite of the preven-

tive; some doubted the utility of the practice altogether, while others believed that after a certain number of years the preventive powers of cow-pox were totally lost.

In the first eight or ten years after vaccination was introduced, there were many reasons why disappointments should happen. To make a slight scratch on an infant's arm, and to insert a little matter, without having any subsequent disease to watch, seemed so trifling*and easy a business, that multitudes of persons became professed vaccinators. Clergymen, midwives, parents, and benevolent individuals, were ready to inoculate for cow-pox. But many of them never looked to the vesicle afterwards, to ascertain whether it had gone through its regular stages; many prevented the system from being affected by drawing away the greater part of the vaccine matter to inoculate others; and few were aware that there are certain states of the system, and diseases of the skin, which prevent the cow-pox from having its usual and proper effect. When all this is taken into account, we need not wonder that many who are said to have been vaccinated, should afterwards be found to have taken small-pox; the wonder rather is, that such sanguine and careless conduct was not followed with more calamitous results. Yet, in spite of it all, it is an undoubted fact, that for a considerable number of years, small-pox was hardly ever seen. Some cases of eruptions, however, at length did appear, which candid and unprejudiced physicians could not overlook: persons who, in their infancy, had been vaccinated to the complete satisfaction of their medical attendant, having reached the age of ten, twelve, or fourteen years, were seized with eruptions very much resembling small-pox in the previous symptoms, the appearance of the pustules, and the general fever. These eruptions were believed to be *chicken-pox*, a disease which requires considerable accuracy of attention to distinguish it from small-pox, especially at its commencement, and which by

no means unfrequently attacks persons who have gone through the regular small-pox. When this explanation could not be adopted, from the complete dissimilarity of the disease in question to chicken-pox, they who still were unwilling to cast away the advantages of vaccination, acknowledged that if it did not absolutely and universally secure from small-pox, it wrought such a change in the constitution, that the person who was seized with small-pox took the distemper in a form greatly mitigated, and nearly free from danger. It was stated, also, that it was not so true as it is generally thought, that a person cannot have small-pox twice; that many instances are on record of its occurring more than once in the same individual; and that there was reason to think that chicken-pox was not a disease arising from a distinct and specific contagion, but merely a kind of small-pox, changed or modified by various circumstances, either in the constitution of the person attacked, or in the character of the epidemic. If small-pox did not always secure from a second attack of small-pox or from chicken-pox, it was possible that cow-pox might not do so; and it remained for medical men to watch narrowly, and report faithfully, the degree of security afforded by vaccination. For a considerable number of years after the introduction of the new practice, the small-pox had been always very mild, and therefore the efficacy of vaccination had not been very severely tried; but about the year 1816, a small-pox epidemic, of great extent and virulence, aroused the attention of medical men anew to a strict inquiry into the preventive powers of cow-pox. Many who were seized with small-pox were found never to have been vaccinated; but among the multitudes who were affected with eruptive diseases during that wide-spreading epidemic, not a few were found to have been regularly and satisfactorily vaccinated, either by private practitioners or public establishments. Medical men now inquired, with much anxiety and with laborious

research, into the history of former small-pox epidemics; and from ample experience and observation it was established, that a person may have small-pox twice; and that a first attack, though it lessens, does not altogether destroy the susceptibility of the same individual to a second attack. That a second attack may appear, either in a regular form of small-pox, or in some of its modifications, swine-pox, hives, &c.: that small-pox, and at least some other eruptive diseases, are produced by the same specific contagion, and that the diseases produced by it are modified by various causes, as peculiarity of constitution, the severity of the epidemic, or by the patient having undergone some previous eruptive disease, which had power to protect the system from the usual severity of small-pox: that cow-pox possesses this protecting power in a remarkable degree, as the body which has been subjected to it will not receive small-pox by inoculation, though it will sometimes receive it when the atmospheric contagion is very active: that when small-pox does occur in the vaccinated, it is generally mild and free from danger: that small-pox does not protect the constitution from small-pox neither so generally nor effectually as cow-pox does, since the cases of a second attack of small-pox were found to be more numerous and more severe than those cases which occurred after cow-pox.

Nevertheless, so slow is the progress of reason and truth, so difficult to conquer prejudices or to alter habits, that many people would rather have their children pass through small-pox than trust to vaccination; and medical men are yet to be found who will weakly comply with their wishes in this respect. Yet there are many reasons against this practice. Though the small-pox is in general rendered milder by inoculation, yet it is by no means invariably so; many to whom it was imparted in this way have been known to have a severe and fatal disease: and in others who did recover, many marks

were left, and the lurking maladies of the constitution, as scrofula, &c. were called into operation, as certainly as after natural small-pox. Inoculated small-pox does not infallibly secure the individual from a second attack, either in the regular form or in what is called horn-pox, swine-pox, &c. Of those carefully observed in the epidemic at Edinburgh in 1818, one-twelfth part who had previously passed through small-pox took it again, and two out of seventy-one died. Even although a mild small-pox may be communicated by inoculation to one person, he may infect his neighbours with small-pox of the most malignant kind; these may infect others, and thus the fancied security of one may be dearly bought to the community by the sufferings and death of thousands. While small-pox inoculation is continued, we can never hope to render general the safe and easy practice of vaccination, which insures a mild and modified disease to any who may be infected with small-pox contagion. The enlightened and honourable part of the medical profession have, with hardly an exception, refused to inoculate with small-pox matter; and it is only they who take advantage of the ignorance and prejudices of the vulgar, who are active in keeping up the pernicious practice. The Board of the National Vaccine Establishment of England, in their report for the year 1820, say, "We find that the multitude, in many places, have been so infatuated as to accept the proffered services even of itinerant inoculators. Hence a perpetual source of contagion is supplied and kept up." Nor is the evil yet likely to be at an end; for in the London newspapers, at the commencement of September, 1827, it was stated, that the small-pox is kept up by the more worthless class of apothecaries, who inoculate with that disease for five shillings a head. Under some of the arbitrary governments of the continent, where power can be exerted for good as well as ill, the practice of vaccination is enforced by legal enactments, and inoculation for

small-pox is prohibited under severe penalties; the consequence is said to be, that in some of their states, small-pox has ceased to exist. The spirit of political liberty in this country, will hardly tolerate legislating on such a subject, though it is not easy to see why it should not be brought under police regulations as well as the plague; but, till this be done, we can only hope that the superior advantages of vaccination will commend themselves to the notice and support of the well-informed classes of society, and by their influence be extended to its lowest ranks, and in this way alone will small-pox be extirpated.

Were vaccination some formidable and dangerous operation, attended with certain present suffering, and communicating only a distant and doubtful advantage, one might feel reluctant to recommend it, and might consider much argument and persuasion necessary. But when the whole affair consists in two slight scratches, followed by a vesicle or two, which must be very much mismanaged indeed to give the child a moment's uneasiness, and which is all over in fifteen days, we are ashamed to waste many words in advising parents to subject their children to so easy a process. A common bleeding, a purge or a blister, which many people submit to unnecessarily, under an erroneous supposition of its preserving health, is far more painful and dangerous in its effects than the whole process of cow-pox.

The simple affection from vaccination, (for it can not be called a disease,) has been proved by the experience of thirty years, to secure the constitution from small-pox with far greater certainty than small-pox secures from a second attack of that disease; and instead of a crop of fiery pustules and suppurating boils over the whole body, there is no eruption except at the spot where punctures have been made. This is of itself a most powerful reason for preferring vaccination. Small-pox, when given by inoculation, in many cases filled the body with scars,

and left the face pitted and disfigured ; and it was observed, that of those who applied to public charities for blindness, two-thirds had lost their sight by small-pox. From all such calamitous circumstances cow-pox is entirely free. In the crowds who frequent public places, or are seen in the streets of great towns, how few who have grown to youth and manhood within the last thirty years, present the melancholy wrecks of beauty which were formerly so often seen ! Vaccination then is recommended by the mildness of the practice, by the security it affords against dangerous small-pox, by the fewness of its vesicles, by its being attended with no risk to others, and by its preserving unimpaired the beauty of the countenance. The religious scruples against inoculating with small-pox, which were entitled to respect have no foundation here. Some might conscientiously consider it as a tempting of Providence, to inflict a severe and dangerous disease which it was possible might be escaped ; and a good man would be very unwilling to purchase the possible security of his own child, at the risk of infecting a whole neighbourhood ; but all such fears in relation to vaccination are groundless ; the patient himself can not be called ill, his friends may approach him with perfect safety, and he communicates no infection to the atmosphere around him.

Proofs that vaccination has been properly performed. It has been said in a thousand instances, that such and such a person has had small-pox after having been *inoculated*, meaning by this, inoculated for cow-pox, when such is not really the fact. For it does not follow, that because a person has been inoculated for the disease, he can be considered as *vaccinated*, or endowed with that security against small-pox which vaccination affords. If the puncture at which matter was inserted, heals without the formation of a vesicle, either from there being too little matter applied, or from its being washed off with the blood, or rubbed off by the

clothes, the most ignorant can not think that in such a case, cow-pox has affected the constitution. Some have inoculated with common purulent matter, or with cow-pox matter when the vesicle was beginning to turn ; or they have broken all the vesicles too soon, and taken away the matter which should have affected the constitution, or the vesicle has been accidentally broken and all the vaccine matter has escaped ; or from irritation by the child's clothing, or by its being scratched, an inflammation has been induced at the spot where the matter was inserted, and in place of the vesicle being filled with the proper lymph, it has contained only the common matter of an abscess. Vaccination has been found to fail when there is extensive chronic disease of the skin present. Now, to know whether vaccination is perfect, besides its going through the regular stages, and leaving a distinct and characteristic mark, the following test has been proposed by the late Mr. Bryce of Edinburgh, and very generally adopted as satisfactory. When the vaccine inoculation has been performed, and the vesicle is going on properly, a second inoculation is performed on the other arm, in the course of the fifth day of the process ; and it is found, that when the system is properly affected, the second puncture is covered with a vesicle, which, though smaller goes through its stages, and is surrounded with an inflamed circle, so as to finish its course at the same time as the first.

The security afforded by vaccination is not at all diminished by the lapse of time. Dr. Jenner found, that persons on whom vaccination had been performed thirty, and even fifty years before, resisted completely the infection of the small-pox ; and in the extensive epidemic of 1818 and 1819, Dr. Thomson found, that the mildness of small-pox which occurred after vaccination, was not at all influenced by the more or less remote period at which vaccination had been performed. Those persons, therefore, are mistaken, who

assert that the security against small-pox goes on decreasing in proportion to the length of time that has elapsed since the individual had been vaccinated.

Cow-pox does not occasion other diseases. Another assertion equally ill-founded has been made against vaccination, that other diseases, especially skin diseases, particularly measles, have been more frequent and severe, since the introduction of vaccination. Let it be remembered, that all that the most zealous advocates for vaccination claim, is its power of preventing almost entirely, and, certainly, of greatly mitigating, the severity and fatality of small-pox. If, therefore, a hundred children are saved from dying by small-pox in the first years of life, there are a hundred more subjects for the other diseases of childhood over which vaccination has no control; a hundred more to be affected by whooping-cough, by scarlet fever, by measles, or by croup. In such a case, other diseases will appear on the bills of mortality to be more frequent, but this is not the fault of vaccination. Neither are the diseases of children at all more fatal of late years than before cow-pox was heard of. The universal observation of the most experienced practitioners attests the contrary.

It must appear evident, therefore, that in the whole history of the vaccine inoculation, the medical profession have conducted themselves with the liberality and candour for which they are so honourably distinguished. As the small-pox generally attacked individuals in the interesting and helpless period of childhood, when parents would spare no cost within their power to bring them easily and safely through that loathsome disease, the conducting of this branch of practice was a certain and lucrative source of revenue to medical men; yet, when they believed a sure preventive had been found, they did not with cruelty and selfishness conceal it, but spread it through the world for the benefit of mankind. When the experience of revolving years convinced them that their first

hopes were too sanguine, and that they had admitted too unreservedly the efficacy of cow-pox as a complete and universal preventive of small-pox, they were not ashamed to acknowledge their error, and to estimate the value of cow-pox at a lower rate, but still at a most important standard.

CHICKEN-POX.

Chicken-pox is a disease of the eruptive kind, in various particulars resembling small-pox, and apt to be confounded with it. At present, there is a considerable difference of opinion among medical men, with respect to the nature and even the existence of chicken-pox as a distinct disease; some considering it as such, while others consider it only as a modification of small-pox, occasioned by the previous occurrence either of small-pox, or of cow-pox. While the matter continues undecided, we shall describe it as a distinct disease, and mention some of the symptoms in which it differs from small-pox. Chicken-pox arises from a peculiar contagion, and attacks persons, generally speaking, only once in their lives. It is preceded by chilliness, by sickness or vomiting, headache, thirst, restlessness, and a quickened pulse. After these feverish symptoms, which are generally slight, pimples appear on different parts of the skin, in the form of small red eminences, not exactly circular; having a surface shining, and nearly flat, in the middle of which a small clear vesicle soon forms. On the second day, this is filled with a whitish lymph; on the third day, the fluid is straw-coloured; and on the fourth day, the vesicles which have not been broken begin to subside. Few of them remain entire on the fifth day; and on the sixth, small brown scabs appear in place of the vesicles. On the ninth and tenth days they fall off, without leaving any pits. Chicken-pox is generally a disease of little or no danger: requiring only some mild laxative medicine with diluent drinks, avoiding exposure to cold, and attending to the diet, and to

the bowels during recovery. If in any case the fever should be more severe, stronger purgatives may be necessary; and some medicine may be given to promote perspiration, and to diminish fever, as small doses of antimonials; with the spiritus mindereri, or a little nitre added to the drink.

The principal marks of distinction between chicken-pox and small-pox are the following: The small-pox commences with a variety of severe symptoms of approaching fever, with vomiting, and even sometimes with convulsions; and at a period generally well defined, viz. the third day, the fever abates a little, and the eruption appears; but in the chicken-pox the fever is milder, and more uncertain in its duration: the pimples of chicken-pox are more quickly formed into vesicles or pustules than those of the small-pox are: the fluid in chicken-pox does not acquire the thick purulent consistence of that in small-pox: and in chicken-pox, the crusts or scabs are formed far earlier than in small-pox: *lastly*, in chicken-pox there is no secondary fever.

ERYSIPELAS.

By erysipelas is understood an inflammation of the skin alone, or of the skin in conjunction with the subcutaneous cellular tissue. Like other inflammations, it varies in degree and extent, in different cases. When it effects merely the external surface of the skin, in which case the latter is red, not sensibly swollen, soft and without fluctuation, the disease is termed erythema. The cases to which the term erysipelas is more generally applied, are marked by the same symptoms as above, but of a more intense grade; there is greater redness, considerable tumefaction, a peculiar burning pain, and an effusion takes place beneath the cuticle, raising the latter in the form of blisters of various sizes; very generally there is effusion also in the subcutaneous cellular tissue. The most aggravated form of the disease is termed phlegmonous erysipelas;

in this both the skin and cellular membrane are inflamed, and extensive collections of matter and sloughing of the cellular structure are quickly produced.

The parts most commonly affected with erysipelas, are the face and limbs; less frequently, especially in adults, the surface of the chest and abdomen. In a few instances, the disease has been known to pervade the entire surface of the body; cases of this description are very generally fatal.

Erysipelas is confined to no particular age, sex or constitution. It is more common, however, in infants and young children, as well as in the aged, than in persons about the middle period of life. It likewise more frequently attacks females than males; and persons of a sanguine and irritable temperament, and of luxurious and intemperate lives, are more liable to its attacks than others.

In some cases, the disease is confined to a very small space, in others it extends over the whole head and face, or occupies an entire limb. It not unfrequently commences at a point, and gradually extends in every direction, until it involves a very large portion of the skin. In other instances, in the part first affected, the inflammation runs through its various stages and disappears, while it subsequently extends over a new surface to pursue the same course. In this manner, it may travel gradually from the head to the feet. In other cases, again, the erysipelas may suddenly disappear from the part primarily affected, to reappear in another and remote part of the body. It occasionally happens, that when the disease very suddenly disappears from the skin, some internal organ, and particularly the brain, in cases of erysipelas of the face, suddenly present all the symptoms of inflammation.

The part affected with erysipelas in its simplest form, presents the ordinary symptoms of inflammation, namely, swelling, heat and redness. The swelling, however, is softer, more

irregular and diffused than in common inflammation; the heat is more intense, and the accompanying pain is a burning or smarting, similar to that from the application of mustard or scalding water, in place of being throbbing or tensive as in the latter; the redness is brighter and more intense, and disappears upon pressure, but returns the moment the pressure is removed. When erysipelas attacks a limb, in general the whole circumference of the latter becomes enlarged, and the skin presents a kind of smooth shining appearance, and a somewhat doughy feel, as though a fluid was effused beneath it, which is, in fact, the case in most instances, when the disease is of any violence or extent. When the face is the seat of erysipelas, the features become deformed; the mouth is often drawn towards one side; the nose is enormously enlarged, and the eye-lids, becoming swollen, close up entirely the eyes.

After a few days, the period differing in different cases, vesications, varying in size, arise upon different parts of the inflamed surface, especially towards its centre. They are of an irregular form, and filled with a fluid, at first clear and watery, becoming subsequently straw-coloured and opaque. The cuticle, after a time, gives way, allowing the fluid of the vesicles to escape, which generally drying upon the skin, covers it with thin scales. About the eighth or ninth day of the disease, but occasionally much later, the redness of the affected surfaces changes to a brownish or yellow hue; the vesicles entirely subside, and the cuticle dries and scales off.

Such is the ordinary course of erysipelas, but numerous varieties appear in relation to its intensity, course, continuance and termination, in different individuals. In slight cases it may terminate in a few hours or days, with the occurrence of little or no vesication; in others, it will continue for weeks or even months; the vesications causing, in some instances, large and troublesome sores.

In general, the disease is preceded and accompanied with fever, varying in its character according to the constitution, age, and general state of health of the patient. In the young, the robust, and those of full habits, we have a very decided attack of fever, and often of considerable intensity. When the face or scalp is the seat of erysipelas, there are often pain and oppression of the head, inclination to sleep, coma or delirium. The tongue becomes dry and brown; the pulse rapid and feeble, with great loss of muscular strength. In other cases, the heart and nervous system are less affected, but we have pain in the stomach, foul tongue, a bad taste in the mouth, nausea and constipation.

The symptoms of phlegmonous erysipelas are the same as those which mark the simple form of the disease; but they invariably assume a more aggravated character. The swelling is very considerable, extending, often, over the entire surface of the limb; it is firm and of a deep red colour. When not arrested by a prompt and active treatment, the inflammation ends very rapidly in suppuration and sloughing of the cellular membrane. The matter formed is not, as in common inflammation, confined within a circumscribed cavity, but is diffused throughout the cellular membrane, giving to the limb a peculiar feel like that which would be produced by a quagmire or morass. Very soon the skin bursts at one or more points, and large portions of the cellular substance, resembling wetted tow, are discharged, together with large quantities of matter, through the openings. Such cases, unless properly managed, terminate very generally in death; or when nature, after great and long-continued suffering to the patient, effects a cure, a degree of permanent deformity or lameness, is very often known to remain.

Erysipelas is produced by the same causes as other inflammations. It may result from cold and various irritants applied to the skin, or it may be pro-

duced sympathetically from irritations seated in the stomach and bowels. Phlegmonous erysipelas very generally results from wounds, bruises, extensive ulcerations, or from the influence of cold.

The treatment of erysipelas does not differ materially from that proper in other inflammations. In young persons, when the disease is of any extent and accompanied with much fever, bleeding from the arm and leeches to the seat of the disease, repeated according to circumstances, with either of the following purgatives, will, in general, be demanded: Calomel, five grains; rhubarb, ten grains; tartar emetic, an eighth of a grain; or, sulphate of magnesia, one ounce; tartar emetic, one grain; water, six to eight ounces; dose, a large table-spoonful every two hours. The patient should, at the same time, be kept upon a very abstemious diet, and at perfect rest, in a cool, well ventilated chamber. The best local application in these cases is cloths wet with cold water, and frequently repeated. When the disease occurs in the old and debilitated, local bleeding by leeches will frequently be demanded; but it will, at the same time, be necessary to keep up the strength of the general system by a nourishing diet, and by the bark.

After bleeding and the use of purgatives, if the erysipelas continue with evident symptoms of disorder of the digestive organs, two to four grains of calomel, combined with two or three of the antimonial powder, may be given every six hours for one, two or three days; or we may employ in the same way the calomel with chalk.

During convalescency from erysipelas, the same precautions must be observed as in other inflammations, to prevent a relapse.

In many extensive cases of erysipelas, blisters to the edges of the inflamed part, will have the effect of very speedily arresting the disease.

In phlegmonous erysipelas, the free use of the lancet and leeches is demanded at the very commencement of

the attack; the bowels should be evacuated by some brisk purgative, as the compound senna tea, and then the calomel and antimony freely administered, interposing an occasional dose of the saline purgative, directed in the case of simple erysipelas. The bleeding from the leech-bites in this form of the disease, should be encouraged by warm fomentations, as it is important to arrest it in its early stage. If, notwithstanding the above remedies, the inflammation still continues, incisions with a lancet through the inflamed skin and cellular membrane will be proper; the part is then to be covered with cloths wrung out of warm water, and subsequently with a bread and milk poultice. When suppuration has taken place, extensive incisions are all-important to give vent to the matter and dead portions of cellular structure; after these have been discharged, a bandage to the part will promote its healing.

PURPURA.

Purpura means an efflorescence on the skin, consisting of small, distinct, purple specks and patches, attended with general debility, but not always with fever. These specks and patches are occasioned by an extravasation of blood, under the cuticle, from the extremities of the cutaneous vessels. The petechiæ, or spots like flea-bites, which occur in certain typhoid fevers, the appearances of stripes in similar cases, and the livid marks common in scurvy, are instances of purpura.

There is one species of purpura, of considerable severity and danger, to which no English or popular name is given: Medical writers call it *purpura hæmorrhagica*, from the profuse discharges of blood which sometimes occur, and endanger, if not destroy, the life of the patient. We shall give the description of the disease from Dr. Bateman, and add such remarks as may appear useful.

The petechiæ are often of a large size, and are interspersed with livid stripes and patches resembling the

marks left by the strokes of a whip, or by violent bruises. They commonly appear first on the legs, and at uncertain periods afterwards, on the thighs, arms, and trunk of the body; the hands being more rarely spotted with them, and the face remaining generally free. They are usually of a bright red colour when they first appear, but soon become purple or livid. In the spots which appear on the tongue, gums, palate, and inside of the cheeks and lips, where the cuticle is extremely thin, it breaks from the slightest force, and the effused blood is discharged. The gentlest pressure on the skin, even such as is applied in feeling the pulse, will often produce a purple blotch, like that which is left after a severe bruise.

The same state of things which gives rise to the effusions under the cuticle, produces likewise copious discharges of blood, especially from the internal parts, which are defended by more delicate coverings. These hæmorrhages are often very profuse, and not easily restrained; and therefore sometimes prove suddenly fatal.

This singular disease is often preceded for some weeks by great lassitude, faintness, and pains in the limbs, which render the patient incapable of any exertion; but, not unfrequently, it appears suddenly in the midst of apparent good health. It is always accompanied with extreme debility and depression of spirits; the pulse is commonly feeble, and sometimes quickened; and heat, flushing, perspiration, and other symptoms of slight febrile irritation, recurring like the paroxysms of hectic, occasionally attend.

The disease is extremely uncertain in its duration: in some instances it has terminated in a few days; while in others it has continued not only for many months, but even for years. When the disease terminates fatally, it is commonly from the copious discharges of blood, either suddenly effused from some important organ, or more slowly from several parts at the same time.

The causes of this disease are by no

means clearly ascertained, nor its pathology well understood. It occurs at every period of life, and in both sexes. The rapidity of the attack, the acuteness of the pains in the internal cavities, the actual inflamniatory symptoms that sometimes supervene, the occasional removal of the disease by spontaneous hæmorrhage, the frequent relief derived from artificial discharges of blood, and from purging, all tend to excite a suspicion that some local visceral congestion or obstruction is the cause of the symptoms in different instances.

When purpura is accompanied with a white and loaded tongue, a quick and somewhat sharp, though small pulse, occasional chills and heats, and other symptoms of feverishness, however moderate; and if at the same time there are fixed internal pains, a dry cough, and an irregular state of the bowels, blood-letting to a considerable extent, but cautiously employed, and free and repeated evacuations of the bowels, by medicines containing some portion of the submuriate of mercury, will be found most beneficial. The continuance or repetition of these evacuations, must, of course, be regulated by their effects on the symptoms of the complaint, or on the general constitution; and by the appearance of the excretions from the intestines, and especially of the urine; to which last excretion, Dr. Combe, of Leith, has very properly directed our attention. In a case, which he treated successfully by blood-letting, he found the urine contained abundance of albumen, as happens in inflammatory dropsies. When the urgency of the hæmorrhagic tendency has been diminished by these means, the constitution rallies, though not rapidly, with the assistance of the mineral acids, and the decoction of bark, or cascarilla, or some preparation of iron, together with moderate exercise, and nutritious diet.

The similarity of the spots and patches to those which occur in seascurvy, and the discharges of blood from the mouth in both diseases, have

led some to confound them together, and to consider purpura hæmorrhagica as a disease of debility, to be treated by the mineral acids, tonics, bark and wine; but there seem to be two species of purpura hæmorrhagica, the one accompanied by fever, and a disease of increased action; the other a chronic affection, and not attended by fever, inflammatory blood, or serous urine. Our practice must be regulated by the individual cases, and not a little, perhaps, by the state of the urinary secretion.

ITCH.

The itch is a well-known cutaneous disease, which commonly arises from infection communicated by touching the body or clothes of a person already infected, or by using the same bed-clothes as those who have it. It is very generally caused by the want of cleanliness, and seems to be very prevalent among the inhabitants of cold countries. The itch appears in small pimples about the fingers, the wrists, the thighs, and the middle of the body; it attacks every place except the face: the itching is very troublesome, and the scratching, by breaking the pustules, causes the disease to spread still more. Sometimes the pustules are large, and filled with purulent matter like boils. This purulent kind principally occurs in children between the age of seven and fourteen. The irritation of itch is almost entirely local, and does not produce general fever. In some species of itch, but not often, minute insects are found in the reddish streaks or furrows *near* the pustules, but not in them; but in the vast majority of cases the communication of the disease does not depend on the transfer of insects, but on that of the matter.

For this filthy disease, sulphur is an effectual and long established remedy. It may be taken internally, or applied to the skin, formed into an ointment with lard or butter. The parts affected are to be well rubbed every night; or if they are very extensive, one half

may be rubbed in the morning, and the other in the evening. Five or six applications commonly cure the disease; but it is prudent to continue the rubbing for a few days after the cure is apparently completed. The only objection to the sulphur is its disgusting smell and appearance. These may be disguised by the addition of strong smelling perfumes composed of essential oils, and other substances; and in order to cure the disease without sulphur, various other remedies have been tried. The root of the white hellebore made into an ointment, or a decoction, has been known to cure the itch; it is one of the ingredients, along with sal-ammoniac, in many of the itch ointments. Sulphuric acid has also been recommended, and corrosive sublimate. But for common and general use, nothing ought to supersede the almost unfailing powers of sulphur. In addition to the use of this remedy, the warm bath, repeated daily, will greatly accelerate the removal of the disease. The patient should always be fed upon a mild unirritating diet, composed principally of vegetables.

TETTER.

There are two kinds of what is called tetter, the dry and the humid; and of each of these there are several varieties.

I. The *Scaly Tetters*, the *psoriasis* of Willan, exhibits more or less roughness and scalliness of the cuticle, with a redness underneath. Sometimes the eruption is diffuse and continuous, and sometimes in separate patches, of various sizes, and of an irregular figure. The surface under the scales is tender and irritable, and the skin is often divided by deep fissures. It is commonly accompanied by some constitutional disorder, and is liable to cease and return at certain seasons.

Some have a hereditary predisposition to tetters; women of a dry skin and languid circulation are subject to it; and it affects them more particularly after lying in, or during a state of chlorosis. In children, it is not unfre-

quently produced by the many sources of irritation to which they are exposed. It is observed in both sexes, connected with gout; and in those who are predisposed to this eruption, slight occasional causes appear to excite it; such as being overheated by exercise, the unseasonable employment of the cold bath, a copious use of acid fruits, vinegar, or crude vegetables, and some peculiar mixtures of food.

In the commencement of the eruption, when it appears suddenly, and the constitution is obviously disordered, a moderate antiphlogistic treatment must be pursued. A gentle purgative, as magnesia and rhubarb, or an occasional Seidlitz powder, should be administered, and the diet made light, by abstracting every thing stimulant. This regimen, indeed, is requisite throughout the course of this disease, which is immediately aggravated by sympathy, with irritation of the stomach, whether by spices, fermented or distilled liquors, pickles, or vegetable acids; whence the disuse of these articles contributes materially to its cure. In the early and inflammatory stages, even the mildest substances irritate the skin and aggravate the distress of the patient. A decoction of bran, a little cream, or oil of almonds, sometimes produces ease; but the use of preparations of zinc or lead is commonly detrimental. If the constitutional disturbance has subsided, the internal use of carbonate of potash, with tepid washing with simple water, or milk and water, will gradually remove the complaint.

II. The *Humid or Running Tetter*, the *impetigo* of Willan, is characterized by the appearance of small pustules. It is not accompanied by fever; it is not contagious, nor communicable by inoculation. It occurs chiefly on the extremities; the most common variety appears in circumscribed patches, which are usually small and somewhat circular on the upper, and large, oval, and irregular on the lower, extremities. The patches at first consist of clusters of yellow pustules, set close together, and surrounded by a slight inflamma-

tory border; in a few days the pustules break, and discharge their fluid; the surface is then red and shining, as if it were stretched, but exhibiting numerous minute pores, from which a considerable thin discharge is poured out, accompanied with much troublesome itching, heat, and smarting. This discharge dries partially into thin greenish scabs, from under which it still continues to ooze. In the course of three or four weeks, the scabs fall off, but are liable to be renewed, as well as the discharge.

It can not often be traced to any obvious cause. A predisposition to it appears to be connected with the sanguine temperament, with a thin soft skin, and a relaxed and bloated habit of body. Certain seasons appear to have great influence on the disease, in those who are predisposed to it.

At the commencement of humid tetter, it is useful to administer flowers of sulphur internally, in such quantities as not to induce purging; and if there is much irritability of the skin, a portion of soda, nitre, or carbonate of potash, may be combined with it. Diligent washing with tepid water, is at the same time to be employed. When more inveterate, it requires mercurial alteratives, as the blue pill, or calomel and rhubarb. The best ointments are those made with oxyde of zinc or acetate of lead. When the irritability is less, the pitch ointment, or citrine ointment, diluted with five or six times its weight of lard, is often found to be very beneficial.

SHINGLES.

The shingles is a disease characterized by a number of vesicles, most commonly around the waist, like half a sash; but sometimes like a sword-belt across the shoulder. It very rarely surrounds the body completely; hence a popular, but groundless apprehension, that if the disease goes round, it will be fatal. The disease is usually preceded, for two or three days, by languor and loss of appetite, rigours, headache, sickness, and a frequent

pulse; with a heat and tingling in the skin, and shooting pains through the chest, and at the pit of the stomach. After these symptoms, which are more or less severe in different cases, there occur, on some part of the trunk, red patches of an irregular form, at a little distance from each other; upon each of which, numerous small elevations appear, clustered together. In the course of twenty-four hours, they enlarge to the size of small pearls, and are filled with a limpid fluid. The clusters are surrounded by a narrow red margin. During three or four days, other clusters continue to rise in succession, and with considerable regularity. About the fourth day, the vesicles acquire a milky or yellowish hue, which is soon followed by a blueish or livid colour of the bases of the vesicles, and of the contained fluid. Several of them run together; and those which are broken, discharge a small quantity of a serous fluid for three or four days; this concretes into thin dark scabs, which soon become hard, and fall off about the twelfth or fourteenth day. Where there has been considerable discharge, numerous pits are left. The feverish symptoms commonly subside when the eruption is completed; but sometimes continue much longer, probably from the itching and smarting of the vesicles. Although resembling some other eruptive diseases, in its rise and decline, it is not contagious, and persons may have it more than once. The disease, in general, is slight, and free from danger.

It chiefly attacks young persons. It is most frequent in the summer and autumn, and arises not unfrequently from exposure to cold after violent exercise. It has come on after bowel complaints, and after the pains of the chest, following acute affections of the lungs.

This disease does not require severe or active treatment. Gentle laxatives, as magnesia and rhubarb, castor oil, compound senna tea, or Seidlitz powders, and when the deep-seated pains are severe, diaphoretics with anodynes,

as the Dover's powder, or a tea-spoonful every three hours of the following mixture: water, four ounces; sulphate of morphia, one to two grains; tartar emetic, one grain; cinnamon water, one ounce; with a light diet, is all that is requisite in the cure. A little simple ointment is to be applied to the ulcerated surfaces, to prevent their being injured by the clothes rubbing or sticking to them.

RING-WORM.

The ring-worm is a disease of the skin, appearing in small circular patches, or rings of vesicles, round the circumference of a circle of apparently healthy skin: these vesicles are small, and contain a transparent fluid, which is discharged in three or four days, when little dark scabs form over them. Sometimes there is a succession of the circles on the upper parts of the body, as the face and neck, and the arms and shoulders. Dr. Bateman thinks, that though the ring-worm has been observed in several children in one school or family, at the same time, it is not contagious, but is probably to be attributed to the season, or some other common cause. There is another disease of the scalp, popularly termed ring-worm, and manifestly contagious, to which we shall advert when we have spoken of the treatment of the true ring-worm. The ring-worm is not unfrequently, by the common people, besmeared with ink; and by the use of this, or other astringent and stimulant applications, the pain and itching are much relieved; and weak solutions of the salts of iron, copper, or zinc, or alum, or ointments into which the same ingredients enter, will answer a similar purpose.

The infectious ring-worm. This more formidable and infectious species of ring-worm appears in distinct patches of an irregularly circular figure, on the scalp, head, and neck. It commences with clusters of small light yellow pustules, which soon break, and form thin scabs over each patch; and these, if neglected, become thick and

hard by gathering on one another. If the scabs are removed, however, the surface of the patches is left red and shining, but studded with white elevated points, in some of which minute globules of pus again appear in a few days. As the patches extend, the hair covering them becomes lighter in its colour, and sometimes breaks off short; and as this process is repeated, the roots of the hair are destroyed, and at length there remains uninjured only a narrow border of hair round the head. It generally occurs in children of three or four years old and upwards, and often continues for several years. It can be considered as about to terminate only when the redness and exfoliations disappear together, and the hair begins to grow of its natural colour and texture. The disease seems to originate spontaneously in children of feeble and flabby habits, who are ill fed, uncleanly, and not sufficiently exercised; but it is principally propagated by the actual conveyance of the matter from the diseased to the healthy, by the frequent contact of the heads of children; but more generally by the use of the same towels, combs, caps, or hats.

While the patches are in an inflamed and irritable condition, we must be content with regular washing or sponging with warm water, or some emollient fomentation. Even the operation of shaving, which is necessary to be repeated at intervals of eight or ten days, produces a temporary increase of irritation. At this time all stimulant lotions and ointments should be avoided. The disease assumes various forms, and these require a corresponding variety in the treatment; so that no single application can be said to possess any unfailling power against the ring-worm. When the inflammatory state subsides, a dry scabbing and exfoliation ensue; but again the pustular eruption breaks out, and the patches again become red and tender. In other instances the surface becomes inert and torpid, while a dry scaly scab constantly appears, and active stimulants are requisite to effect any change in the disorder. In

more irritative states, the milder ointments, with calomel, oxyde of zinc, acetate of lead, should be employed, or sedative lotions, as decoctions or infusions of poppy-heads or tobacco. When there is an acrimonious discharge, the ointments of zinc and lead, or the milder mercurial ones, or a lotion of lime water with calomel, are advantageous. In a very dry and inert state of the patches, caustic substances are often very successful. Sometimes a solution of nitrate of silver, six grains to the ounce, or the mineral acids slightly diluted, or the application of a blister, removes the diseased skin, and the new one assumes a healthy action. But in the varying forms and degrees of ring-worm, the remedies must be varied, and combined, according to the degree of irritation which prevails. Dr. Bateman disapproves of the rough methods of practice, by which the hairs are forcibly removed; as he thinks they inflict great injury on the scalp, and retard, rather than expedite the progress to recovery. In general, the system at large is not affected, and little internal medicine is necessary; but in weakly constitutions, bark and the preparations of iron, with a nourishing diet, are to be prescribed; and attention must be paid to the patient's diet, clothing, and exercise.

SCALLED HEAD.

The scalled head, or *Porrigio favosa* of Willan, consists in an eruption on the head, of large flattened pustules, with an irregular edge, and surrounded by a slight inflammation. They most commonly spread from the scalp, especially from behind the ears, to the face; or from the lips and skin to the scalp. They are usually accompanied with considerable itching, and occur most commonly in children. The pustules, especially on the scalp, appear at first distinct, though near together; but on the face and extremities, they generally rise in irregular clusters, becoming confluent when broken, and discharging a viscid matter, which gradually concretes into

greenish, or yellowish semi-transparent scabs. The disease extends by the successive formation of new blotches, which sometimes cover the chin, or surround the mouth, and spread to the cheeks and nose; and the ulceration spreads in a similar manner over the head, by which the hair and moist scabs are matted together. Vermin are often generated in great numbers, and increase the itching and irritation of the disease. Children, by picking and scratching at the edges of the scabs, occasion a similar aggravation of the disease on the face, and extend the ulceration. These ulcerating blotches give occasion to swellings in different parts, as the neck and behind the ear; these inflame, suppurate with much pain, and give rise to tedious discharges. Acrid matter also comes from behind the ears, or from the ears themselves, and there is inflammation of the eyes, or obstinate ulcerations of the edges of the eye-lids. The discharge sends forth an offensive vapour, which affects not only the organs of smell and taste, but the eyes of those who examine the diseased parts; and this matter inoculates sound parts of the body by touching them; and the arms and breasts of nurses are liable to be affected in the same manner.

To remove this disease, small doses of calomel may be given internally; and the diet and exercise should be carefully attended to; fruits and raw vegetables should be avoided, as well as heating stimulating food; and the diet should consist of milk, puddings, gruel, and a little plain animal food or broth. If the patient be weak, and much troubled with glandular swellings, the bark and chalybeates will be of service. It is very seldom proper to use stimulant applications externally, as there is commonly some inflammation present. An ointment of oxyde of zinc, or sugar of lead, is best, when the discharge is copious; and the citrine ointment, with equal parts of simple cerate and cerate of litharge, is generally beneficial. Dr. Bateman disapproves of all stiff coverings, as of

oiled silk, and of the popular application of cabbage-leaves or the like, as he has seen very hurtful irritation, inflammation, and copious discharge of matter induced by this practice; which symptoms are best subdued by the application of an emollient poultice for a day or two; and then the mild application above mentioned.

SCROFULA.

Scrofula, or king's evil, is a tedious disease, appearing under many forms; of which one of the most characteristic marks is a tendency to a swelling of glandular parts, which, when they come on to inflammation and suppuration, discharge an unhealthy, curdy, mixed matter, and form ulcers very difficult to heal.

This tendency to glandular swelling is the mark of a peculiar constitution, most commonly derived from parents or ancestors; and in such constitutions, diseases and accidents, which produce comparatively little inconvenience to others, are liable to be attended or followed by very troublesome and alarming symptoms. Thus a child of a healthy constitution may have a very severe attack of small-pox or measles, but the disease will in such run its course favourably, and leave no trace behind; whereas, in a scrofulous child, the same disease very frequently proves the commencement of permanent and incurable ulcers, discharges from the ears, deafness, inflammation of the eyes, debility, consumption, and a long train of other ailments.

Scrofula does not always show itself very early in life, nor is there always present any unhealthy peculiarity of look which invariably announces a predisposition to it; on the contrary, many a plump thriving child needs but the irritation of teething, or an attack of catarrh, sore throat, or other slight affection, to bring into action this destructive malady; and many persons of apparent high health and delicate beauty, when they reach a certain age, or are exposed to certain accidents, as cold or damp, or over-exertion, give

fatal proof of having carried in them the seeds of this troublesome disease. Scrofulous persons, though frequently very beautiful, are seldom robust or able to endure much fatigue.

The children most commonly attacked with scrofulous diseases, are those of a soft fine skin, fair hair, and delicate complexion; but it is sometimes seen in those of a more robust make and darker complexion. Children having a tendency to rickets, as indicated by a large belly, large joints, and prominent forehead, very generally possess the scrofulous habit. Those who reside in damp, uncomfortable dwellings, exposed to many privations, who are badly clothed, who live on scanty and unwholesome food, deprived of exercise in the open air, and who are inattentive to cleanliness, are those who are most subject to the disease. The countries where scrofula is most prevalent, are those of a cool moist atmosphere, where the seasons are variable, and the weather unsteady. Seasons and weather, which remain cold and humid for a considerable time, often prove the occasion of an attack of scrofula.

Scrofula is one of those diseases which are manifestly hereditary; and families, the members of which have a tendency to scrofula, ought to be particularly careful as to the manner in which they bring up their children. Since the malady is not always in active operation, it becomes a matter of great importance to know whether it can be kept from appearing and committing its destructive ravages; whether any management in early life, or in more advanced years, will protect the lively child or the beautiful youth from the dangerous enemy which has attacked his fellows, and whether an early and assiduous care may not counteract the hereditary constitution of scrofulous families. Towards effecting these important objects, much may no doubt be done by an appropriate diet and regimen. While every thing is to be avoided which has a tendency to over-stimulate

and inflame the system, such diet and regimen are to be adopted, as have a tendency to strengthen and invigorate it. Children who show any predisposition to scrofula, should be brought up on plain, but nourishing and easily digestible food; such as good broth, with a moderate allowance of solid meat; but pastry, heavy puddings, and the like, should be avoided. Their clothing should be warm, and they should use much active exercise in the open air when the weather is temperate and dry; they should use the warm bath, and, in the proper season, sea-bathing.

Having made these introductory remarks on the prevention of the disease, we shall proceed to give some account of the general appearances and treatment of scrofula. The disease most commonly first shows itself between the third and seventh year of a child's age; but it may arise at any period before the age of puberty, after which it rarely makes its first appearance, at least externally.

The attacks of scrofula usually begin some time in winter or spring, and get better or disappear in summer or autumn. The first appearance of the disorder is the occurrence of small round tumours under the skin of the neck, about the ear, or below the chin, without any pain or discolouring. In some cases, the joints of the elbow or ankle are the parts first affected. In this case, the swelling surrounds the whole joint, and impedes its motion. After some time, the tumours acquire a larger size, the skin which covers them becomes more purple and livid; and they inflame, suppurate, and break into little holes, from which a mixed pus-like fluid, intermixed with curdy-looking matter, at first proceeds, which soon changes into a thin serous discharge. These ulcers spread unequally in various directions; some of them heal, but other tumours form, followed by other ulcers. In this way, the disease continues a number of years, and at last the ulcers heal up, leaving behind them very disagreeable scars, which

are often the cause of great deformity. In some scrofulous habits, the eyes and eye-lids are the principal seat of the disease, shown by the incessant inflammation of the ball, and the raw and painful state of the lids of the eyes. The bones of scrofulous persons are liable to disease, namely, to partial or general enlargement, to inflammation, suppuration and exfoliation. Diseased spine is also much connected with a scrofulous constitution. Many internal parts are subject to disease in scrofulous habits. The glands of the mesentery, through which the fluid destined for the nourishment of the body has to pass, become obstructed, inflamed, or suppurated; the consequence of which is, a swelling of the belly, while the rest of the body is wasting; hectic fever, disordered bowels, and gradual decay. The lungs of scrofulous persons have, almost universally, tubercles or little whitish knots in them, which inflame and suppurate, and are the commencement of fatal consumption. Water in the head, which so often carries off many children of the same family, is believed to be connected, very generally, with a scrofulous taint. Scrofula does not spread by contagion; hence, however obstinate scrofulous sores may be, the matter discharged from them is by no means acrid, nor does it infect other persons, or other parts of the same body when applied to them.

In proceeding to the treatment of scrofula, our first consideration should be directed to the management of the tumours which appear externally. It is certainly proper, as far as we can, to prevent their coming to a suppuration; and for this purpose, we are to endeavour to promote their dispersion by the prudent use of leeches and gentle friction, aided by proper diet and regimen, with occasional purgatives; taking care to avoid all exposure to cold and moisture, and to keep the swelled parts covered with flannel or warm clothing. When we find our attempts to promote a resolution of the tumours to be unavailing, we must ap-

ply to them emollient poultices; and at the same time give nourishing diet to invigorate the system, and bring on a kindly suppuration. It becomes a matter of importance, how to treat the abscesses when matter is formed; whether to let them break, or to open them with the lancet. Whichever way they are opened, there is a probability of a long-continued discharge; and the surgeon should state to the friends of the patient, that by allowing the matter to be discharged by a lancet, he has it in his power to make a small and effectual opening; whereas the matter, if the swelling be left to itself, will perhaps break, and discharge at several different places; and nothing will be gained, with respect to the continuance of the after-discharge, or the prevention of unseemly scars. When the ulcers remain open and spread, a variety of applications will be necessary. Sometimes a stimulant dressing is required, as the ointment of verdigris, or basilicon; at other times, simple dressing, as lard, or cerate, is all that can be borne. Sometimes a degree of inflammation will suggest the propriety of a poultice; but this must not be continued long, lest we induce a relaxation of the parts around. We must vary our treatment also by the application of different washes, astringent or cooling, as sulphate of zinc, or sugar of lead. Sea-water sometimes is of service. But, under every treatment, scrofulous ulcers disappoint our hopes, and continue open for a tedious time; and, at length, in many cases, without any perceptible cause, they suddenly put on a healthy action, and heal up, not to break out any more.

The constitutional treatment, during this period, should be as invigorating and as little stimulating as possible; a good, wholesome, but light diet, pure air, and active exercise are necessary; a residence in the country, and sea-bathing are useful auxiliaries. Some practitioners have spoken with great commendation of the warm bath for scrofulous patients. Its use should be persevered in for a considerable time.

With respect to medicines which have been given internally for the cure of scrofula, the list is long, and therefore unsatisfactory. One drug after another has been tried, and found not to answer. Among others, iodine, muriate of lime, and the preparations of iron have been tried, and have been found unquestionably the most beneficial. In some cases it may be advisable to open an issue in some part of the body, at a distance from the ulcers or glands which we fear may come to suppuration. It will be seen, that in the foregoing account of the symptoms and treatment of scrofula, we have confined ourselves to the external form of it, principally shown by the ulcerations and swellings of parts within our sight; but there are many internal diseases which occur in scrofulous habits, as dropsy of the head, curved spine, white swelling, consumption, &c. which are treated of under their respective heads.

RICKETS.

The disease called rickets is chiefly incident to infants, between the ninth month and second year of their age, but sometimes it appears between the second and sixth year. The children who are affected with rickets are mostly those who live in moist and damp places, who are poorly fed, and who are not kept cleanly. Since the labouring classes have been collected in large manufacturing towns, the disease appears to be on the increase. The rickets come on slowly, with a flabbiness of the flesh, wasting of the body, paleness of the countenance, and some degree of swelling of the face. The head appears large in proportion to the body, and the joinings of the bones are more incomplete than usual; while the *opening* of the head is very large. The forehead becomes unusually prominent, and the neck appears small. The teeth are long of cutting, and soon spoil and drop out. The ribs get flattened, and the breast-bone rises; the spine is bent, the bones at the joints are large, and the long bones between the joints, being smaller and unable to support the

weight of the body, bend and continue crooked. In many cases the child is weak, disinclined to exertion, or unable to walk. The appetite continues, however, pretty good; but the stools are frequent and loose, and the belly is much swelled. Children affected with rickets in general have their mental faculties very acute, even prematurely so; but, in a few cases, they are morbidly dull. Sometimes the disease abates, and the child recovers its health; but the deformity and bending of the bones remain throughout life. One of the most distressing cases of rickets is that which leaves the female pelvis distorted and contracted, and hence subjects her to all the torture and risk attendant upon difficult labour, or even rendering, should she become pregnant, the birth of the child impossible.

The remedies proper for the cure of rickets are those of a strengthening kind, applied to the whole system, and to the stomach in particular. Warm or sea bathing, the pure air of the country, removal from damp and moist places, and attention to cleanliness, are among the first requisites. The diet is to be nourishing, but easy of digestion, and not stimulating; and when the debility is great, it will be proper to give bark or quinine, and the preparations of iron. A proper degree of exercise is to be given, by carrying the child in a horizontal posture, avoiding all attitudes that might add to the deformity. The digestion is to be assisted by the administration of rhubarb, with a little calomel, and an occasional emetic. The belly and back are to be rubbed with some stimulating liniment or anodyne balsam, as camphorated oil, or the soap liniment. When the teething of rickety children is difficult, we are to apply the appropriate remedies; and in every instance, to pay most particular attention to the stomach and bowels. A rising of one shoulder sometimes occurs in young women between twelve and fourteen, and is to be regarded as a degree of rickets. The arm of that side should be tied up, and the other alone employed for some

months. Steel stays of a proper construction, and very accurately fitted, should be worn for a long period.

SCURVY.

Scurvy is a term which has been very generally misapplied, both in popular discourse and in the writings of medical authors. By such inaccuracies, it has been used to indicate a great number of very dissimilar disorders of the skin; and indeed it became quite general to give the name of *scurvy* to any eruption, or long continuing scaliness, for which there was no appropriate name at hand. By medical writers, and by the well-informed non-professional man, the term scurvy is now applied to that disease which is produced by a long abstinence from fresh vegetable food, exposure to damp, and the influence of the depressing passions, and which is therefore frequently observed in long voyages, in camps, and in besieged towns.

Scurvy comes on gradually, with heaviness and aversion to motion, with dejection of spirits, anxiety, and great debility. The countenance becomes sallow and bloated, the breathing is easily hurried, the teeth become loose, the gums are spongy, and bleed when slightly touched; and livid spots appear on different parts of the body. A very curious circumstance sometimes occurs in scurvy: old wounds, which have been long healed, break out afresh. In Anson's ship, about 1740, a wound broke out in one of his marines, which he had received at the battle of the Boyne, fifty years before. If the disease is not checked, the joints become swelled and stiff, the tendons of the legs stiff and contracted; a dark coloured blood issues from the nose, the ears, the anus, and other parts; fetid stools are discharged, and the patient dies with symptoms of diarrhœa or dysentery.

The common predisposing cause of scurvy, and which, when long continued, needs no other to excite the disease, is long confinement to a diet destitute of a due admixture of fresh

vegetable substances; hence the frequent occurrence of scurvy in long voyages, during which the ship's crew are compelled to live much on salt provisions, and in besieged towns, where the provisions are scanty and bad; and in cold, damp, and poor situations, where human life is with difficulty supported. Among other very powerful exciting causes, we are to reckon want of cleanliness and ventilation, a damp and cold atmosphere, and, above all, depressing passions. On the large scale of observation afforded in fleets and armies, it is invariably found, that whenever any thing occurs to damp the spirits of the men, the scurvy uniformly becomes worse; whereas, any thing that tends to increase their liveliness, has as conspicuous an effect in rendering it milder and less frequent.

The destructive ravages of the scurvy in fleets and armies render it an object of attention to the statesman, and to the naval and military commander, as well as to the physician; and it has been very properly remarked, that all the improvements in navigation and nautical astronomy, by which a ship can keep the sea for so long a period, would have been utterly useless, had there not been found out some method of preserving the health of seamen during those long voyages. Happily it has at length been ascertained, that by keeping the ship perfectly clean and dry, by allowing the men as much recreation and exercise as possible, and by taking to sea a proper supply of lime or lemon juice, and distributing to the ship's company a portion of it every day, when their fresh provisions begin to fail, they may be kept from scurvy as effectually as any number of persons living on shore, and using fresh vegetables every day. This has, for a considerable number of years, been ascertained on a very extensive scale of experience. During the long voyages of Captain Cooke, he kept his men quite free from scurvy. In the numerous and extensive armaments which were made during the wars of the French revolution, and in the long voy

ages to India and China, it was only in ships where the supply of lime juice was neglected, that any symptoms of the scurvy appeared. From one to two ounces a day are a sufficient quantity for this salutary purpose; and it may be given diluted with water, or made into lemonade, with sugar and water, so as to form a healthful and refreshing beverage. When in any individuals the tendency to scurvy appears stronger than in others, as indicated by the spongy and easy bleeding gums, by stiffness of the hamstring, by inertness and dejection of spirits, it will be proper to give an ounce of the juice three or four times a day, till the tendency is diminished. Lime juice is apt to ferment, and not to keep properly, owing to the quantity of pulp and mucilage squeezed out along with it. To prevent this fermentation, it is proper to mix with it a little alcohol or carbonate of lime.

Having said this much respecting the prevention of scurvy, we now proceed to say something concerning its cure. And happily, so far as our experience goes, the same powerful yet simple agent which prevents scurvy, is also fully sufficient to cure it. When circumstances admit of it, and we are able to procure for a ship's company an abundant supply of fresh meat and vegetables, this is the natural and appropriate remedy; but in the last stages of the disease, when the debility is great, it is a matter of much danger to take the sick on shore, as they not unfrequently die in the boat that carries them thither; and instances have even occurred of the land air being too oppressive for the lungs of those, who did not previously show marks of so great feebleness. It is by far the safest way to attempt the cure of the men on board their ships; and when the disease abates a little, and the strength is beginning to return, it may then be accelerated by a removal on shore, and by the usual diet and exercise to be found there. Many auxiliary circumstances are to be called

into action, both in the cure and prevention of scurvy; the greatest attention to ventilation and cleanliness, frequently washing the ship in fine weather, fumigation between decks by the vapours of the nitric or muriatic acid, attention to increase the real comfort of the men, and to check all intemperance; to promote regularity of discipline, and cheerfulness of mind. Various articles are to be used in diet which counteract the pernicious tendency of a long-continued use of salt provisions, as spruce or treacle beer, sourcrou, preparations of oatmeal, and occasionally, parboiled fresh vegetables, and the like. But it is obvious that the expense and trouble of all these expedients must, in some measure, hinder their universal adoption; it is satisfactory, therefore, to think, that in the pleasant fruits of the tropical climates, we have a safe, an effectual, and a portable remedy, easily applied, and easily provided, by almost every navigator.

It is unnecessary to enumerate all the vegetables to be used for the cure or prevention of scurvy. Water cresses, radishes, scurvy grass, lettuces, and the like, which may be eaten raw; or cabbage, turnips, spinage, cauliflowers, boiled; or ripe fruits, as oranges, melons, pine-apples, plantain, &c. when they come in the way, as they not unfrequently do in the long voyages to the Indian and Pacific oceans. It is indeed a grateful vicissitude, when a crew, long exposed to dead calms and burning skies, with scanty allowance of water, and with their fresh provisions expended, arrive in China, where abundance of fresh provisions, and a profusion of oranges and other fruits, accessible to every person on board, soon remove the spongy gums, the stiffened sinews, and the unhealthy look with which they reached their desired haven.

Scurvy Spots. This is a term popularly applied to those scaly spots which appear in different parts of the body; a large proportion of the sur-

face being free from any disease. They are sometimes troublesome for a long time, and are with difficulty removed by any medicine or external application.

The best remedies for scurvy spots, when they are thinly scattered and not in a state of active inflammation, or inclined to discharge matter, are washes slightly stimulant, as sulphate of zinc in rose-water, or ointments of red precipitate, half a drachm to an ounce of lard; or the diluted citrine ointment, gradually using it of the full strength. These are to be applied night and

morning, and the greasy matter to be occasionally washed off with a little castile soap and water. The more extensive and formidable kind of spots will require general as well as local applications, the warm bath, rubbing with various ointments of which some of the preparations of mercury are ingredients; accompanied by the use of the warm sea-water bath; attention being paid at the same time to the state of the stomach and bowels, and to the means of preserving the health in general.

PART VI.

PREGNANCY AND PARTURITION,

WITH

THE DISEASES AND ACCIDENTS PECULIAR TO THOSE STATES.

PREGNANCY.

THE state of pregnancy is the condition of the female constitution during the period which intervenes between the time of conception and that of delivery. Though it is a state the very reverse of disease, many changes nevertheless take place during it, and various uneasy feelings arise, which in some constitutions are exceedingly troublesome, and incapacitate the individual from the enjoyment of health, or the easy performance of the duties of life. It may not be superfluous to enumerate the principal circumstances demanding attention or medical aid, as also the proper management under ordinary circumstances of females during pregnancy. Before proceeding to this, it will be proper to enumerate some of the signs which indicate a woman to be in that state, premising at the same time, that no single symptom can be relied upon, and that even their combination does not ensure absolute certainty.

Signs of Pregnancy. It is an almost invariable fact, that while the monthly flux recurs regularly, the woman is not with child: and therefore one of the first signs of pregnancy is the cessation of that discharge. It is to be remembered, however, that a suppression of the discharge may often happen from many other causes, and therefore it can not be depended on as

a sign of pregnancy unless other symptoms follow. When pregnancy has occurred, some derangement of the digestive organs very commonly takes place, with sickness and vomiting, especially in the morning; heart-burn, costiveness, disturbed sleep, and in some cases, irritability of mind and fretfulness of temper. The dark circle round the nipple becomes of a deeper shade, the breasts afterwards become enlarged and harden, and towards the termination of pregnancy, a milky fluid is secreted in them. Sometimes the countenance of the pregnant female becomes pale, and a livid line appears below the lower eye-lid. Some females during pregnancy become rheumatic, and are affected with headache, toothache, or other kindred symptoms. As pregnancy advances, there is a progressive increase in the size of the belly; but it has not unfrequently happened, that women have supposed themselves pregnant when they were not so, and yet that the belly has gone on increasing in size; sometimes from their becoming fat from luxurious living and the want of sufficient exercise, at other times from dropsical or other diseases, and occasionally from causes quite undiscoverable. Towards the end of the fourth month of pregnancy, the woman perceives a fluttering sensation, occasioned by the motion of the infant. In common language, the child is said

then to *quicken*; but we are not to suppose, that this is the first moment of its becoming alive. It had been so, long before, though the smallness of its size and its limited degree of motion had rendered the signs of life indistinct and imperceptible. This fluttering motion may be imitated by flatulence, which often causes mistake and disappointment. Fainting sometimes seizes the mother about this period. The appearance of the blood drawn from pregnant women, after it has stood for a time, in a degree resembles the blood drawn in inflammatory diseases; but this appearance is from many circumstances rendered a fallacious test of pregnancy. It appears, therefore, that in the early months, it is very difficult to ascertain, beyond a doubt, whether a woman be pregnant or not; and practitioners should always be extremely cautious in giving any positive opinion. A rash announcement that the woman has been deceiving herself, may give such a shock to her feelings, as to be productive of the most lamentable consequences; and with respect to the management of doubtful cases, it is always safest to treat them as if the woman were pregnant, till time puts the matter out of question; as fatal consequences might result both to the mother and child, by an attempt to get rid of supposed tumours or any apparently morbid symptom, by violent medicines or other means, when pregnancy has actually occurred.

1. *Disorders of the early months.* Vomiting, sickness, heartburn, and other symptoms of indigestion, very often require attention in the early months of pregnancy. When the woman is otherwise healthy, the sickness is not to be treated with any very powerful remedy; no brandy or laudanum should be allowed an any consideration; but it must be moderated by abridging the diet, by taking little at a time, and by confining the patient to those articles of food which she has experienced to agree with her. In robust and plethoric habits, the taking from the arm a few ounces of blood will

often give relief. If the heartburn is attended with a constant desire to hawk up phlegm, it may be advisable for once to clear out the stomach by an emetic. Afterwards, the bowels are to be carefully attended to; and a little bark and sulphuric acid to be taken twice a day. When the heartburn is accompanied by a sour taste in the mouth, with sour belchings, it is to be palliated by magnesia, or prepared chalk, or lime-water, and the bowels are to be kept gently open by castor oil, by senna, rhubarb, or other mild laxatives.

Swelling and pain in the breasts. Sometimes in the early months of pregnancy, the breasts become swelled and very painful, especially in those who are in good health, and of a full habit of body. Great care should be taken that no part of the dress be tight over the breasts, and that the corsets do not press upon them. The breasts are to be rubbed with a little warm oil, twice or thrice a day, and they are to be covered with soft flannel. The bowels are to be kept open, and in those who are of a very full habit, a little blood may be taken from the arm.

Longings. In the early stages of pregnancy, the minds of women are often fretful and impatient, and can not bear any contradiction. Among the vulgar and self-indulgent, it is an opinion, that if they do not get whatever they desire, whether any article of food or other object of attention, something very bad will happen either to themselves or to the child, particularly that the child will bear the mark of the object longed for, however loathsome and disgusting; and hence they are at no pains to restrain their capricious fancies, but expect the most ready compliance on the part of all around them. It should be known that all fears of imparting any marks to their offspring by controlling improper longings, are utterly groundless; and though no person of common good-nature would think of thwarting any harmless inclination or longing of a pregnant female, yet it ought to be her

own care not to be discomposed by every trifle, and not to occasion unnecessary distress or trouble to those about her. There is no doubt that during the state of pregnancy, the nervous system is with many in so irritable a state, that the most prudent management is required; and by neglect, unnecessary opposition, or harshness, symptoms may be induced that will occasion both alarm and danger; and a prudent physician or friend will therefore be always disposed to err rather on the side of indulgence than of opposition, and will rather suffer the harmless longings of women to be indulged notwithstanding their absurdity, than run the risk of injuring their health by an injudicious sternness.

2. Disorders in the latter months.

Costiveness ought to be most carefully guarded against; and in the state of pregnancy, no person should allow two days to pass without an evacuation. The bowels may be kept gently open by attention to diet, using a considerable proportion of vegetable food; and by taking occasionally some laxative medicine. An occasional clyster, after long costiveness, may be useful, but women should never allow their bowels to get into this torpid state during pregnancy; as it is productive of much general derangement to their health, occasioning heat and flushing, feverishness and irritability; and may demand very unpleasant manual interference to break down the hardened mass. When laxative medicines are taken, their effect may be to increase the slimy discharge from the bowels, while the feculent contents are not dislodged; this must be carefully looked after, and purgative medicines that act slowly but effectually, must be resorted to, such as aloes combined with soap, rhubarb, scammony, or colocynth; and these should be followed up by castor oil, neutral salts, senna, or the compound powder of jalap.

Looseness. If the bowels during pregnancy are very loose, the appropriate remedies for diarrhoea must be used. It will be right to give a laxa-

tive medicine to clear the bowels of any irritating substance, and afterwards to give small doses of rhubarb or catechu; taking care that we do not bring on again the opposite state of costiveness.

Piles. Pregnant women not unfrequently suffer much inconvenience from piles. They are to be prevented and mitigated by avoiding costiveness, by the occasional use of mild laxatives, as sulphur and cream of tartar, and by avoiding the standing posture, or much walking. An ointment made of two parts of litharge ointment and one of powdered galls, may be rubbed on the piles; and if there be much swelling, with great pain and feverish symptoms, leeches may be applied to the parts, and the bleeding encouraged by fomentations. The bleeding piles seldom require much attention, except when the discharge is too profuse. In most cases the proper management of piles occurring in pregnant females, is a matter of very great importance, as it not unfrequently happens, that some of the most troublesome symptoms after delivery, proceed from the irritation excited by piles, which have been much pressed upon during labour.

Palpitation of the heart. When this affection occurs during pregnancy, it is generally the effect of a disordered stomach. It is to be relieved by an emetic, when no circumstances forbids the employment of this; by laxatives, by lowering the diet, and avoiding every article of food that is likely to cause flatulence or to overload the stomach. Hysterical symptoms occur chiefly about the period of quickening; they are alarming to those who do not know their nature, but they do not last long. The best treatment is to strengthen the body by diet, air, exercise, and attention to the state of the bowels; and to regulate the mind, and keep away any sudden impressions that may agitate or alarm it. When the fit is on, it is to be shortened by camphor, or valerian, or assafœtida; but opium in all its forms is to be avoided.

Cough and shortness of breath, oc-

curring during the latter periods of pregnancy, without fever or inflammation, are to be ascribed to the bulk of the enlarged womb and its contents, which by pressing on the diaphragm, diminishes the space in which the lungs move, and thus impedes them in the free exercise of their functions. A half-sitting posture gives some relief; but nothing will remove the above symptoms, but delivery; although, when they are particularly troublesome, small bleedings may cause some mitigation. Blisters are not to be employed.

Pains of the side, belly, back, and loins, are very frequent complaints of pregnant women. In some cases, they may arise from distention and flatulence of the bowels; such are to be treated by giving rhubarb, castor oil, and other mild laxatives; or they may arise from the stretching of the abdominal muscles, when they are to be treated with anodyne balsams, externally applied; by a bandage which gives some support to the parts, and by changing the posture of the body frequently in the course of the day. When they are more severe, small bleedings may be necessary.

The *bladder is sometimes in an irritable state*; in which case, the patient should use mucilaginous drinks and gruels, and be attentive to evacuate frequently. Towards the end of pregnancy, there is sometimes an inability to retain the water, which is forced away by any exertion, especially by coughing. It is thought rather a good sign, indicating that the head of the child is low down in the pelvis; and therefore, though inconvenient, it need be no cause of alarm.

Retention of urine is a symptom that should never be neglected at any period of pregnancy, especially at the latter part of it; as it might be productive of very bad consequences, were labour to come on while the bladder is full.

Jaundice sometimes happens during pregnancy, and in general there is no cure for it but delivery; the uneasy

symptoms are to be palliated by attending to the bowels, giving infusions of chamomile to assist digestion, and aloes combined with soap, to stimulate the intestines. If the yellow colour of the skin is very deep, and accompanied with violent pain in the side, and great sickness and vomiting, we judge the complaint to be owing to the formation of gall-stones, by one of which the entrance of the bile into the bowels is prevented. Relief is to be attempted by blood-letting, by fomentations to the side, by opiates, and by laxatives to prevent the constipation arising both from the disease and from the opiate.

Swelling of the legs, and enlargement of the veins of the lower extremities, are very frequent accompaniments of pregnancy. They are owing to the enlarged uterus pressing on the great blood-vessels; and but little can be done for the relief of these symptoms, which, without any measures of art directed to them, go off spontaneously soon after delivery. But when the swelling rises above the knee, or appears on the upper parts of the body, and does not disappear after some hours rest in the horizontal posture, it seems to indicate a too great fullness and inflammatory tendency in the system, and requires large bleedings, and repeated purgatives. If the swellings arise from a debilitated state of the constitution, and a dropsical habit, the strength of the patient is to be supported by a mild, nourishing diet and tonics, while we give what relief we can, by medicines that increase the flow of urine.

Toothache. Some women during pregnancy are much troubled with toothache. It is to be palliated by anodyne applications externally, by small blisters behind the ears, and by fomentations; but very rarely by drawing any of the teeth; indeed it sometimes has happened, that abortion has been produced by drawing a tooth; and surgeons and dentists are not fond of performing this operation during pregnancy.

Cramp is a common occurrence to-

wards the end of pregnancy. It is relieved by change of posture, and by rubbing with anodyne balsam; but delivery alone completes the cure.

Headache. This is never to be neglected in pregnant women, especially towards the later periods. If it proceeds from slight causes, as from disordered stomach, it will be the more easily removed by remedies calculated to restore the regular functions of this organ; but if it proceeds from previous mental agitation, or from peculiarity of constitution determining the flow of blood to the head, it may occasion apoplexy or convulsions of the most alarming nature. To remove it, we must then bleed freely.

Convulsions. When a woman complains of violent excruciating pain in the head, if she has swelling and redness of the face when in the erect posture, or cramps in the stomach; with oppressive sickness, the approach of convulsions is to be suspected. When it does come on, there is violent agitation of the body and limbs, the face is flushed or bloated, the tongue is moved frequently backwards and forwards with a hissing noise, and there is a little bloody froth about the mouth. The duration of the fit varies from a minute or two to half an hour. The woman is quite insensible while the fit lasts, and when sensibility returns, she has no remembrance of what has happened. Sometimes, long after the fit, there is loud breathing and continued insensibility, from which the unhappy sufferer is roused by another convulsion. Sometimes the fits bring on labour pains.

Convulsions of the above alarming description are owing to circumstances both of mind and body, connected with the state of pregnancy. The greater quantity of blood then formed in the body, and the increased susceptibility of the nervous system, may be stated as the predisposing causes. In this state, many things that would have little effect at other times, give rise to convulsions; such are irritation of the stomach or bowels, or of the urinary

organs; fatigue, sudden agitation of mind. It is very frequently observed that females who are very anxious about their situation, are those who are most liable to be seized with convulsions.

When the threatenings of a fit have shown themselves, the occurrence of this is to be prevented by large bleedings; and if the fit has actually come on, the quantity of blood necessary to be taken, exceeds that which is required in the cure of almost any other disease. The head is to be shaved, and cold applied in the most effectual way, as by iced cloths, or vinegar and water, or muriate of ammonia dissolved in water. The feet are to be bathed in tepid or in hot water; and if the delivery has begun, it must be assisted by proper means, and accomplished as speedily as possible.

Pregnant women often experience a degree of *anxiety and despondency* approaching to disease; more especially when they have been in the way of hearing untoward histories of other women in that state, or when there is much sickness in the neighbourhood where they reside. To prevent the occurrence of fits, a good deal will depend on their natural temper and character, and on the prudent conduct of their friends, either by diverting their over-anxious thoughts from their own situation, or by showing them that their fears are groundless.

We may lay it down as a general maxim, with regard to the great variety of ailments which occur to women in the pregnant state, that they are all to be listened to with patience and attention; that they are never to be ridiculed as affected or capricious; that though we are not to have recourse to violent medical or surgical treatment on every trivial complaint, we are yet to examine carefully whether any mild and safe remedy can be applied, and to encourage the patient by the assurance, that though art can in many cases do but little, these ailments have no tendency to make the delivery more difficult; and that they may con

fidently look forward to that event, as likely to put a period to all their annoyances.

FLOODING.

By flooding is meant a sudden and copious discharge of blood from the womb. It may take place at any period of pregnancy, but it is most commonly applied to those discharges which take place immediately either before or after delivery. Flooding is an occurrence of general and just alarm, and requires the most prompt and speedy assistance. When it occurs during the early periods of pregnancy, it is a symptom of threatening miscarriage, and in the next article we shall give a full statement of the measures proper to be then pursued. When it happens shortly before delivery, it is most commonly owing to the after-birth being situated near the neck of the womb, and when this begins to expand, some of the large vessels by which the after-birth is there attached, are broken, and pour out blood in great quantity. As the after-birth is the connecting substance between the mother and child, and as the whole of the blood which circulates through the body of the child previously to birth, passes through it, it is obvious that the child is exposed to the greatest hazard of bleeding to death, and that the mother also is in immediate danger of an irreparable loss of blood when the connection between the after-birth and womb is in any manner destroyed. If the woman in whom flooding occurs be not come to her full time, we must try to suspend the action of the womb for some time, by enjoining the utmost quietness, by taking a little blood from the arm, or by giving opiates. If this does not succeed, or if the patient is at her full time, the only means of safety to the mother and the child, (though to the child the probability of life is very small,) is to accelerate the delivery as much as possible; and the accomplishment of this is, of course, to be entrusted only to an experienced practitioner. When flooding occurs

after delivery of the child, and before the after-birth has come away, this also is of dangerous tendency; and if the discharge of blood is profuse, it is to be checked by getting the after-birth speedily expelled; and for accomplishing this purpose, no rougher methods are to be used at first than very gentle rubbing of the belly with the hand, or soliciting the extrusion of the placenta, by pulling very tenderly at the cord. When the after-birth has come away, the womb, in general, contracts into a small bulk; and by so doing, shuts up the bleeding vessels, and puts a stop to the flooding. This contraction is to be assisted by again rubbing the abdomen, and putting a broad roller round the body to give a proper support and moderate pressure. Another and more alarming kind of flooding is that which happens subsequently to labour, after the womb has been completely emptied. In these cases, instead of the proper contraction of the womb, by which the waste of blood is prevented, it retains a large size, and numerous vessels continue to discharge their blood into its cavity. The patient becomes pale and chilly, her ears ring, her head becomes giddy, she is insensible to surrounding objects, and it is only by the alarming medium of a fainting fit, that the flow of blood is stopped for a short time, but only to return again when the powers of life begin again to rally. When the gentle methods of obtaining contraction of the womb do not succeed, (and there is little time to lose in making the attempt,) we must have recourse to such as are more suited to the impending danger, however rough they may appear. The abdomen of the patient is to be more strongly compressed, and cold water is to be suddenly dashed upon it in large quantities, or wet cloths to be laid upon it. If still we do not succeed in stopping the flow of blood, it will be necessary to introduce the hand into the womb, and by gentle but skilful pressure to solicit the uterus to contract upon it; the hand is then to be gradually withdrawn, as the

uterus is felt pressing upon it, and as it were expelling it by closing behind it. In some cases of flooding, the mouth of the womb being closed, there is no flow of blood externally, but it is not the less lost to the patient, as it is out of its proper vessels, and fills up the internal cavity of the womb. The occurrence of this accident is known by the same constitutional symptoms as the former, by the dizziness, the fainting, and debility; and by the belly speedily rising to a size almost as large as before delivery. Means must be immediately taken to empty the womb of the clotted blood which fills it, and to induce contraction in order to stop any farther discharge. It is seldom that the womb can be properly emptied of that blood without the introduction of the hand. When the coagulated blood has been removed, the same means of inducing contraction, as above described, are to be resorted to. Sometimes, the non-contraction of the womb is owing to part of its fibres being seized with cramp, by which there is a contraction in the middle, while the upper and lower parts of the womb are expanded, forming what is called the hour-glass contraction. To overcome this spasm, pretty large doses of opium are to be given, forty or fifty drops of the tincture, or a grain and a half of the solid opium repeated at a short interval, till it has been three times taken.

The management of the patient after the flooding has ceased, is of a very delicate and difficult nature. The powers of the constitution seem nearly quite exhausted; and to attempt recovering them by stimulants, would be attended with considerable hazard. The best cordial that can be given in the first instance, is a dose of laudanum to the extent of forty or fifty drops; but sometimes the debility and feeling of sinking are so urgent, that stronger stimulants must be had recourse to, as hartshorn with spirit of wine and a little water, or wine, either alone, or mixed with water. If the collapsed state of the system is thus counteract-

ed, and if sleep comes on, we may hope that the feeble pulse will acquire a firmer beat, and the exhausted strength be recruited by degrees. In the course of an hour or two, some nourishment of the simplest kind should be given, as a little calf's-foot jelly dissolved in water, or a little panado with a small portion of wine, or very weak chicken broth; most particular care being taken, that the quantities given be very small and frequently repeated; and that there be nothing given indigestible or over-seasoned. The patient must on no account be allowed to rise up hastily, or to make any exertion; every occasion of alarm or agitation should be carefully kept from her; her diet must be light and nutritive, gradually increasing as the powers of digestion recruit; and a little wine and bark may be given when the debility continues great. Much injury is often done to the female constitution by flooding; and in many instances the debility and pallid countenance immediately produced by it remain till the end of life, even though that is protracted for many years. It is, therefore, an accident that should in every case be assiduously guarded against. Even after a common and easy delivery, there should be as little disturbance of the woman as possible for many hours; no shifting of her dress beyond what is absolutely necessary for her comfort; and even a degree of discomfort, which at another time would not be tolerated, must now be suffered to continue; and we should rather place some dry clothes next the woman, than allow any part of her dress to be removed, at the expense of her own exertions in getting up and assisting in her adjustment.

ABORTION.

The separation of the offspring from the mother, at any period before the seventh month, is termed abortion; between which period and the full time, the same event is called premature labour.

Abortion may be described as con-

sisting of two stages: the separation of the embryo from the inner surface of the womb, and its being thrown out of the body by the action of the womb and other expelling powers. For a longer or shorter period before abortion takes place, there is generally pain in the lower part of the belly, or about the back and loins, which gives warning of something wrong being about to happen. Then there is a discharge of blood from the external parts, sometimes slight, at other times profuse and alarming; accompanied or succeeded by sharp pains in the back, the loins, and the lower part of the belly, not constant, but intermitting, like those of regular labour. Often there is vomiting, sickness, or pains of the bowels, and head-ache; and from the quantity of blood lost, fainting fits frequently occur; and there is commonly a sense of weakness, much greater than can be accounted for by the copiousness of the discharge. If, by the efforts of nature or the assistance of art, these symptoms abate or cease, the embryo is retained, and continues to grow; but, in other cases, the discharge of blood continues, and the signs of approaching expulsion of the contents of the womb become more evident. Regular pains ensue, there is a feeling of bearing down, with a desire to make water, and at last, the fœtus comes off, either surrounded with its membranes, if the whole *ovum* be small; or the membranes break, the waters are discharged, and the fœtus comes away, leaving the after-birth behind. If this be long retained, the bleeding and other troublesome symptoms are liable to continue, with the additional ones of fetid discharge and putrescency.

Abortion may be caused, 1. By external violence, as kicks or blows, a fall, or violent action, as dancing, riding, jumping, or much walking. Women, in the state of pregnancy, should avoid many of the domestic operations, so proper, at other times, for good housewives to engage in. As our aim is to be practically useful, we venture, at the risk of exciting a smile,

to mention some exertions that ought to be avoided, viz. hanging up curtains, bed-making, washing, pushing in a drawer with the foot, careless walking up or down a stair. 2. Straining of the body, as from coughing. 3. Costiveness. 4. Irritation of the neighbouring parts, as from severe purging, falling down of the gut, or piles. 5. Any sudden or strong emotion of the mind, as fear, joy, surprise. 6. The pulling of a tooth has been known to produce a miscarriage; and though toothache is occasionally very troublesome to women in the pregnant state, the operation of drawing teeth should, if possible, be avoided at that time. 7. Women marrying when rather advanced in life are apt to miscarry. It would be hazardous to name any particular age at which it is too late to marry, but the general observation is worth attending to. 8. Constitutional debility from large evacuations, as bleeding or purging; or from disease, as dropsy, fever, small-pox. 9. A state the very opposite of this is sometimes the cause of abortion, viz. a robust and vigorous habit, with great fullness of blood, and activity of the vascular system. 10. The death of the child, from whatever cause produced.

Abortion is always an undesirable occurrence, and is to be prevented by all proper means, as a single occurrence of it may irretrievably injure the constitution, or give rise to continual repetitions of the accident. Unless we have reason to believe that the child is dead, it is desirable that abortion should in every instance be prevented, and that the woman should be enabled to go on to the full time, if possible; but if the motion of the child should cease, if the breasts of the mother should become soft after disease or great fatigue, and signs of abortion come on, it would be improper to endeavour to prevent the embryo from coming away; and we must direct our efforts to relieve any urgent symptoms, and do what we can to conduct the patient safely through the process.

When we have determined to attempt checking the discharge and preventing the consequent expulsion, the patient must cease from all exertion in walking, or even sitting upright; and must lie on a mattress or sofa; all heating food or liquors must be avoided; whatever is taken should be rather cool, and cold applications must be made to the back, the loins, and neighbouring parts. A lotion useful for this purpose, and generally easily to be had, is one part of vinegar to three parts of cold water; cloths or towels dipped in this are to be applied as directed above. The fainting, which so often occurs, requires to be relieved by a very moderate use of wine and water; but in this much caution is required, lest copious flooding, feverishness, or inflammatory symptoms be brought on; which latter, in a weakened frame, are apt to occur, from causes too slight to have the same effect in a healthy one.

As abortion sometimes takes place from too great fullness of blood, and from that state of the constitution well known by the name of high health, it is right in such cases to employ bleeding, to order a cooling diet, as light puddings, preparations of milk, or boiled vegetables; and to give gentle laxatives, as castor oil, senna, small doses of purging salts, magnesia and rhubarb. If, under such treatment, the discharge from the womb stops, if the pains cease, and the sickness, headache, and constitutional symptoms are relieved, we may hope that the woman will not part with her offspring, but carry it to the full time. She must make up her mind to remain in the reclining posture for some time, and must consider herself as liable to be affected by the same symptoms and the same danger, if she uses the smallest liberty with herself.

If the discharge, however, still continues, and if there is little likelihood of the pregnancy going on, every thing must be done to assist the woman in the safe completion of the process. We must introduce a soft cloth, dipped in oil, into the vagina, so as completely to

fill the lower part of it. By this means the blood has time to form into clots, and the contraction of the womb throws down the embryo along with them. We should not hastily use any force by the hand to bring the child away; but the time when this may be done is to be left to the judgment of the medical person in attendance. As the after-birth, in the early months of pregnancy, bears a larger proportion to the contents of the womb than it does in the later months, it is often retained long after the child is expelled; but it must be remembered, that the womb will not contract fully till every thing is out of it, and therefore the bleeding will continue till the after-birth is removed. It will in some cases be found to lie partly out of the womb, and if so, the practitioner is to attempt gently to remove it by the hand; but if it be wholly in the cavity of the womb, its expulsion is to be promoted by clusters of gruel, with the addition of salts, or with senna, or even a little of the tincture of aloes.

Patients should be careful not to throw away any thing discharged, on the supposition that they know what it is, but should uniformly show every clot to the practitioner, that he may be enabled to distinguish with certainty whether the child and after-birth are thrown off. When the womb is emptied, the belly is to be tied up with a binder, as after delivery at the full time. The same rest and quiet are to be ordered; the diet must be light and nourishing; heating food, all spirits, wine, and malt liquors, are to be avoided. The practitioner may judge it proper, however, to allow sulphuric acid and bark, subsequently, to assist in recruiting the strength, which, in the event of abortion, is generally greatly exhausted.

A very strong reason for enjoining rest and quietness after an abortion is this, that when twins or three children have been conceived, the embryo of one of them may be thrown off, and the other may be carried to the full time. Any premature exertion might, therefore, endanger the life of more

than one child. When the woman is in some degree recruited, her recovery is to be completed by moderate exercise, by proper diet, by the use of the tepid bath or sea-bathing, and by taking stomachic medicines, as the bark, preparations of iron, or the elixir of vitriol. Few accidents have so pernicious an effect as an abortion on certain constitutions: sometimes the health is irreparably injured, or a habit is begun which prevents the woman from ever carrying a child to the full time. In every future pregnancy particular caution is requisite, especially at the period when the abortion formerly happened, which is very generally between the eighth and twelfth week. For a considerable time before and after this, the woman should lie in the reclining posture, should attend to keeping the bowels open, by such mild laxatives as have been already mentioned, and, if too full, should lose a little blood.

Sometimes, for criminal purposes, it is attempted to procure abortion, either by strong and acrid medicines, by violent exercises, or by direct applications to the parts concerned; but it should be generally known, that there is no medicine which directly and certainly acts on the womb itself; and that to procure abortion by any drug, or mechanical violence, is to run the risk of bringing speedy death on the female, of inducing madness, or causing an irreparable injury to her constitution.

LABOUR.

It is by the general term labour that we express the efforts of the womb, assisted by the abdominal muscles, to expel the fœtus and after-birth, when the child is able to live independently of the mother. The general period of the commencement of labour is about nine calendar months, or from thirty-nine to forty weeks, or from 273 to 280 days, after conception. Occasionally labour may occur a little sooner, and at other times a little later than the above-mentioned period. The time at which labour may be expected is reckoned either from the period when the

monthly discharge last occurred, or from the period of quickening. If the reckoning be based upon the cessation of the monthly discharge, it should be from a fortnight after its last appearance; and if it be calculated from the period of quickening, five months from that may be allowed for the time of labour.

The process of labour is far from being uniform in every instance; and from this circumstance, writers on midwifery have distinguished different classes of labours, of which the principal are, natural, laborious, preternatural, and complex. As child-bearing is a function co-extensive with the species, it might be thought improper and unnecessary either to describe it with such variety and minuteness, or to interfere at all with the process; but experience shows that it is a subject demanding the most careful and discriminating investigation; and that on a proper management of women, during labour, depend the future comfort and health, or even the life, of themselves and their offspring.

1. *Natural labour* is that which takes place at the full time, the head of the child presenting so as to be born first, and in a proper direction, the pains being regular and effective, and the whole process being completed within twenty-four hours. Natural labour consists of three stages: in the first the mouth of the womb and the passages are opened and prepared; in the second, the child is expelled from the body, and separated; and in the third, the after-birth and membranes are excluded.

1. *First stage.* The approach of labour is indicated by pain in the back and loins, occurring at regular intervals, and giving many teasing and disagreeable sensations. When these have continued for some time, a discharge of slimy matter, tinged with blood, occurs, which is commonly known by the name of the *show*. After a number of hours, less or more in different cases, the uneasiness becomes considerable; there are alternate hot

and cold fits; there is a desire to pass water, and the patient is restless and uncomfortable. The pains now increase in regularity and force, returning every ten or twelve minutes, and leaving the woman comparatively easy in the intervals. In many cases, she is troubled for some time, even for days, with ineffectual pains, resembling those of labour, before the true pains commence. These false pains are occasioned by the pressure of the enlarged womb on the neighbouring parts. They occur mostly towards the evening, and during the night; they are slight and irregular; they are not attended by a show, and they are generally mitigated by a change of posture. If they are occasioned by costiveness, this must be removed by laxative medicines, or an injection. When the pains occur every five or six minutes, and the opening of the mouth of the womb is pretty well advanced, the bag containing the child, with a little portion of the waters, is pushed forward, and thus contributes, in a gentle and easy manner, to complete the opening, and to enlarge the parts sufficiently to admit the progress of the child's head. After the passages are prepared, the membranous bag bursts, the waters are discharged, and the pains commonly increase in violence. Sometimes the membranes burst when the womb is very little opened, and the water drains slowly off for one or two days; occasioning what is often called, in the lying-in room, a *dry labour*. In favourable cases, this first stage is completed within twelve or fourteen hours, from the time it fairly begins.

2. *Second stage.* In the second stage the infant is expelled. The pains now are somewhat different: they are felt lower down, they continue longer, and are attended with a straining and bearing down. The pulse becomes quicker, the patient feels hot, and often a copious perspiration breaks out. The head of the child comes down, and stretches the parts, till at length it is expelled, with very severe pain, which commonly ceases immediately afterwards. But

the pain very soon returns, and the rest of the child's body is pushed forward; the proper turns being made during the whole process, so as to bring the broadest parts of the child to pass through the widest parts of the passage. The pressure made upon the head of the child, by the contractions of the womb, deprives it for the time of sensibility; so that it does not disturb the mother by any struggles of its own. In general the pains succeed each other very rapidly in this stage; and their force is so great as to complete the delivery in a period from a few minutes to half an hour. But various causes, to be afterwards noticed, sometimes render this stage a great deal longer.

3. *Third stage.* There now only remains the after-birth, with the membranes, to be thrown off; the discharge of which constitutes the third stage of labour. Some time after the child is born, the patient rests a little, but by-and-by she feels pains, not quite so severe, but rather what may be termed *grinding*. These are occasioned by the contractions of the womb, by which the after-birth is expelled, the cavity of the womb greatly diminished, and the large blood-vessels, by which the placenta was attached, are closed. The non-performance of this contraction gives occasion to dangerous floodings. If the after-birth is not thrown off within an hour, some assistance will be required.

Having briefly stated some of the more common circumstances of natural and easy labour, we shall mention a few variations which sometimes occur. The alternate flushes of heat and sensations of cold are sometimes so strong as to shake the body violently, and even the bed: they do not indicate any thing very bad. Vomiting is another occurrence, which, when it happens alone, need not give any disquietude. Anxiety and fretfulness sometimes seize the patient's mind during the first stage but these are to be dispelled by encouraging language and sympathizing attentions.

Management of labour. There are

various particulars to be avoided, and several things to be done, in the management of women during labour. The good sense of modern accoucheurs has swept away a great number of useless and pernicious practices, which really make it wonderful that so many women got over the process with safety. The crowds of gossips, talking or regaling themselves in the patient's room; one group succeeding as another retires; the cordials and stimulants poured into the patient, are now scarcely tolerated, even amongst the most ignorant and vulgar. A cheerful and prudent friend, with the practitioner and nurse, are all the persons proper to be in the room: a greater number only exhausts the woman's strength, and heats and contaminates the air of the apartment. When the practitioner is called, if the pains are pretty frequent and regular, an examination should be made to ascertain the progress; but it should not be repeated frequently and unnecessarily. The woman need not be confined to one posture; but she should not use violent agitations of the body, nor bear down much in the early stage. No method should be tried to increase the force of the pains, as it is much better for the passages to be gradually enlarged. When the bowels are known to be loaded, an injection is very proper, and the urine should be regularly passed. The bed is to be so prepared, that the moisture from the waters, and other discharges, may not add to the discomfort of the woman. The mattress is placed uppermost; and a dressed skin or oiled cloth, or folded blanket, is to be placed on that part on which the body of the woman is to rest. A clean sheet should be laid on in the usual way; and another, in the form of a roller, across the bed, having the ends folded in at the sides. A coarse blanket, folded within a sheet, ought to be laid immediately beneath the patient. This is to absorb the moisture, and is to be removed after delivery. The rest of the bed-clothes are to be put on in the ordinary way; but it is convenient to have the edge of the sheet at the side

of the bed, to which the patient's back is to be placed, pinned or sewed over the blanket and bed-cover. The woman is to be on her left side, and the practitioner behind her. The bed ought to be placed in such a situation that the room may be properly aired, without the patient being exposed to a current of wind, at a little distance from the wall, when it can be done. The bed-curtains should be of cotton or linen, and never drawn so close as to prevent the free circulation of air. The dress of women in labour should be light and simple, both to keep themselves from being overheated, and to prevent any thing from being in the way of what assistance is necessary. The patient should be put to bed when the first stage is nearly completed. The best posture is lying on the left side; and a pillow or small bundle is to be put between the knees. The bearing down pains should be those of the womb alone, and should not receive any assistance from the voluntary efforts or forcing of the mother; as these violent exertions are apt both to injure the passages and to wear out her strength. At the last pains, when the desire to force down is almost irresistible, the utmost attention, on the part of the practitioner, is necessary, to prevent laceration of the parts. The patient may be allowed to rest a little after the head of the child is expelled, and its body should not be hastily drawn forth. In some cases this may, however, be necessary to be done, when the child seems livid and in danger of injury, or when the cord is twisted round its neck. When the child cries stoutly, the navel-string is to be tied in two places, and separated by cutting between them. The child may then be lifted from the mother, and the proper attentions paid to it. The after-birth is not to be taken away till the pains return in a slight degree. To effect this, all rash or strong pulling is attended with the greatest danger. Neither should the woman use much exertion by straining, coughing, or the like, to hasten the throwing off of the after-birth. The

belly may be gently rubbed with the hand. When no untoward symptoms take place, we may rest from a quarter to three quarters of an hour; but may occasionally, by *gently* pulling at the cord, try if the after-birth is disengaged. When more than an hour elapses, proper assistance will be required; and at any time, if flooding takes place, assistance will be instantly necessary.

II. *Laborious labours.* We now proceed to mention some cases in which matters do not go on so favourably as above detailed. The labour may be more tedious or difficult than usual, from various causes. The propulsive efforts may be less effective from weakness of the system, but more frequently from inertness of the womb itself. Sometimes, though less effective, they are severe enough; but generally they occur but seldom, and produce, when they do occur, but little effect. Sometimes this inefficient contraction is owing to the waters coming away too soon, or the womb being over-distended, as by twins, or too great a quantity of water; or it may be owing to debility, induced by fear or other depressing passions, or general weakness. This is a state of suffering and anxiety, and requires patience and fortitude on the part of the patient, and tenderness and prudence on the part of the assistant. No measures must be taken for forcing matters: no stimulants, nor strong purgatives, nor vomits should be given, as was too much the case in times of ignorance, not very remote. Tranquillity of mind and body is to be enjoined, a little mild nourishment and drink may be allowed, and a saline clyster is often of service. When the expulsive efforts of the womb are prevented from doing their office, by rigidity of the mouth of the womb, accompanied by fullness of pulse, with heat of skin, thirst, and restlessness, drawing blood from the arm is often of very signal benefit. In cases of exhaustion and weakness, it must be obvious, however, that bleeding would be quite improper. If the rigidity of the membranes be the cause of the

delay, it is proper to rupture them, though in usual cases this should not be done. The circumstances above detailed are those which render the labour tedious chiefly in its first stage; and at this period it is not necessary to confine the woman to any particular posture. She may sit or lie as she feels most easy, and if she has any inclination for food, a little may be allowed. The urine should be regularly evacuated.

If the labour is tedious in the second stage, it is generally owing to the state of the external parts, or to a disproportion between the size of the child's head and the passages. In those women who are advanced in life before they have children, the parts often yield with difficulty. A wrong shape of the bones may occasion resistance, or this may happen from diseases within the parts, or uncommon size of the child's head, or swelling of it from water distending the brain and its coverings.

When there is long protracted pressure of the head on the soft parts of the mother, much suffering and danger may ensue. As it is of the most essential moment to have proper assistance in time, we subjoin some of the symptoms which indicate danger. Great tenderness and swelling of the belly, hurried breathing, inability to make water, great tightness within the haunch bones, thirst, quick pulse, and other feverish symptoms, great restlessness, headache, and a degree of wandering of the mind; such symptoms warn us that the powers of nature are not to be depended on, and that nothing but immediate delivery can save the life of the woman. The method of doing this must be left to the judgment of the prudent and skilful practitioner. There are certain instruments which, in proper hands, are fitted to accomplish the delivery without injury to the child, and with hardly any additional suffering to the mother; though no practitioner of education and experience will rashly or unnecessarily use them. Indeed, in several cases it requires great firmness on his part, to resist the importunity

of some women to be delivered by instruments, who have either in their own case formerly, or in those of others, been satisfied of their utility and safety, and who are impatient to have their sufferings terminated.

III. *Preternatural Labours*, or cross-births, are those in which some other part of the child than the head presents to the opening of the womb. We can not, in general, assign any reason for such occurrences, nor can the woman, by any sensation of her own, be assured that the presentation is unusual. Apprehensions of this kind should not be indulged in. If the feet or the breech present, the delivery is to be accomplished by properly accommodating the turns of the child to the capacity of the pelvis, but no force should ever be employed; and though there is always some risk to the life of the infant, there is none to the mother. If the arm, shoulder, or sides of the child present, the delivery is impossible until the infant be turned, and the feet brought down into the passage. This is an operation which may be done with comparative ease and safety, if the wrong position of the infant be discovered before the waters are discharged; but otherwise, both mother and child are in considerable danger. The womb being closely contracted round the body of the infant when the water is drained away, and being soft and spongy in its texture, is liable to be torn if much force be employed; and then, either the child may escape into the cavity of the belly, or if it be extracted by the feet, blood may be effused from the womb into that cavity, and such injury be done as to prove fatal. Women too frequently add to the danger of the operation of turning, by their restlessness and impatience. They should remember how much is at stake, and exert all their fortitude so as not to embarrass the practitioner.

IV. *Complex Labours. Twin cases.*

There are no symptoms during pregnancy, by which it can be certain that a woman has conceived two or more children. This is put beyond doubt

only after the birth of one. If there is a second child, the womb does not appear to be diminished in size, as it does in cases where there is only one. The birth of one child is not prevented in general by the presence of another, though this sometimes happens. Each infant is contained within a distinct sac; but as the head of one infant is generally opposed to the breech of the other, one of them most commonly is a cross-birth. It often happens that twins are small, and the delivery is thus rendered more easy. Twin cases, however, always require much attention, both for the sake of the infants, and because the recovery of the mother is more uncertain than in the cases of single children. The second child is usually delivered soon after the first, but if there be a long cessation of the pains after the first, there is considerable danger. The patient may be allowed to rest a little; but the practitioner should extract the second child before the passages become contracted, or the after-birth of the first-born be separated. As a general rule, we may say, that not more than an hour should be suffered to elapse between the birth of the first and second child. We must guard against the flooding which is apt to occur in such cases; and give very little disturbance to the woman in binding up the belly. When there are more than two children, they seldom all live.

Falling down of the Navel-string.

If the cord, by passing down with the head of the child, or before it, is thus caused to be pressed upon for a very short time, the inevitable consequence will be the death of the infant. This is not, however, a very common occurrence, but it may happen if the cord be uncommonly long, or if the infant be in a cross position. It happens sometimes from mismanagement, when the waters break before the passages are properly prepared. If the cord be felt through the membranes before they break, the woman should be kept very quiet, and as much as possible in one posture, till the womb be fully opened;

at which time it is possible, by turning, to save the infant's life. But when the coming down of the cord has been owing to the too early evacuation of the waters, the life of the infant is to be considered as in great danger; and any attempts to save it, by turning, would be attended with more risk to the mother than it would be justifiable to incur.

DELIVERY.

When the different stages of labour are completed, and the child and after-birth are expelled from the womb, the woman is said to be *delivered*. There are many things to be done, and many to be avoided at this period; and as much of them will require both to be directed and executed by non-professional persons, it may be useful to give some directions for the treatment of women after delivery.

When the after-birth has been expelled, and when the practitioner has ascertained, by putting the hand upon the belly, that the womb is emptied and is contracting properly, the woman should be allowed to repose for at least an hour. If, however, she be not greatly fatigued, she is first to turn slowly on her back, a broad bandage is to be put under her, and pinned evenly on the belly, with such a degree of tightness that she may feel a moderate support to the body. This is necessary to compensate for the great distension which she has borne so long, and which is now so suddenly withdrawn. Whatever is wet and uncomfortable, and can be easily taken away, is to be removed; and when this is difficult, some dry flannel is to be placed next the body. After she has rested from her fatigue, an open flannel petticoat is to be put on, and fastened like the binder. A soft cloth is to be applied to the parts, and the woman may lie in any posture she finds most comfortable. A little panado without wine or spirits, may be allowed if she desires it; and she may be left to rest, after the practitioner has made himself sure that there is no

flooding, external or internal; that the after-pains are not very severe, and that the binder is of a proper tightness. It is desirable that the urine should be passed within twelve or fourteen hours after delivery; and if it is not done naturally, assistance must be given, either by diuretic medicines or otherwise. It is always proper to attend to the state of the bowels, and to take care that a motion be procured not later than forty-eight hours after delivery. If medicines be required, there is nothing better than cold-drawn castor oil; and a dose of this may be necessary every two days, until the bowels become regular.

There are some things which attendants, friends, and patients, are too apt to do, but which should be carefully avoided. The patient should not be completely shifted, as is too often done, immediately after delivery, and by raising her to the erect posture. Fainting or flooding may be the result of this imprudent conduct. It is an injurious practice to give wine, brandy, spirits, heating or spiced liquors. The temperature of the room should be kept moderate, and large fires and loads of bed-clothes should be avoided. A crowd of people, noise, whispering, talking, and officious meddling with the patient, should be strictly forbidden.

The diet of women, after delivery, should be particularly attended to. For the first five or six days, all heating and stimulant food, and in general all solid and animal food whatever, should be forbidden, as such diet is very apt to bring on inflammatory complaints. If the woman is not to nurse, she should avoid liquids as much as possible, and rather take a little fruit, ripe or preserved, to quench the thirst. If she is to nurse, she may have a little tea and panado, or gruel for breakfast, and, after a few days have elapsed, a little weak chicken broth or beef-tea, with toasted bread, for dinner; but wines and malt liquors should be avoided. In about a fortnight, the patient may by degrees return to her ordinary diet. All drink

taken in the first days after delivery should be somewhat warmed.

Rest and quiet should be strictly enforced; no visitors should be admitted for a fortnight or three weeks, both to secure the mother from fatiguing herself by talking, and from hearing any thing that might agitate or distress her mind. The air of the room should be kept cool and fresh, by opening the bed-curtains, excluding visitors, and removing every thing that would taint the air. The bed should not be made too soon, seldom before the end of the third day; and at first, it will be better that the woman be not allowed to sit up, but kept half sitting, half lying, when she is out of bed, at least for the first two or three times of rising. While the usual discharge continues, very little exertion should be used; no going about the house, and hardly from one room into another; but after the second week, she may be out of her room for a considerable part of every day, provided she very frequently use the reclining posture. Great care should be taken on the first going out; it should be for a very short walk, or for an airing in a carriage; and the time and extent of exercise should be gradually enlarged as the patient becomes conscious of returning strength.

Injuries from delivery. 1. The womb, in former times of ignorance, was sometimes *inverted* by rashly pulling at the navel-string before the after-birth was sufficiently detached. If assistance be procured in time, it may be replaced; but when this is too long delayed, the case may prove fatal very soon, or a bloody discharge may continue for a considerable time, and at last destroy the patient. When the inversion of the womb is so complete that it is torn away from its internal attachments, immediate death is generally the consequence. But inversion of the womb may always be prevented by avoiding all rash attempts to extract the after-birth, before it be completely separated. 2. *Great stretching of the parts.* This occasions great soreness, and uneasy feelings, which are best

removed by bathing with warm mill and water. If there be much swelling, an emollient poultice of bread and milk, or linseed meal, may be applied, and frequently renewed. If there be general uneasiness, with heat and throbbing pain in the part, leeches may be necessary. 3. *Laceration.* The space which intervenes between the vagina and rectum is sometimes torn. When this is not very extensive, it generally gets well merely by rest and the ordinary management after delivery; but when more considerable, a communication is formed between the gut and the vagina; this requires the assistance of a skilful surgeon. 4. Sometimes the *urinary bladder is injured*, either by the use of instruments, or by allowing the child's head to be wedged too long in the bones. The disease may be mitigated if taken in time; but, when long delayed, the consequences are very deplorable. Contrivances must be adopted to prevent the continual draining off of the urine.

AFTER-PAINS.

In the child-bed state, women are not unfrequently distressed with sharp pains in the belly, back, and loins, recurring at intervals for several days after delivery. These resemble the pains of labour, being, however, somewhat slighter in degree. They rarely continue above two or three days, and are not attended with any danger. They seldom are troublesome during a first lying-in, but afterwards they are more frequent, in proportion to the number of children a woman has had. One great matter is, to be sure that the pains complained of are after-pains, and not the effect of some more serious disease, as inflammation. After-pains are distinguished by being alternated with intervals of ease, and by being generally attended with the discharge of some coagulated blood from the womb; the pain is not increased by pressure on the belly. Other symptoms, along with the pains, indicate the existence of some other disease. After-pains are alleviated by giving

an opiate shortly after delivery, and repeating the medicine in smaller doses every six or eight hours, taking care not to injure the nervous system by too much opium, nor to bring on constipation of the bowels. Warm flannels may be applied to the lower part of the belly, and in some cases an opiate clyster may be required.

LOCHIA.

Lochia is the name given to the discharge which takes place from the uterus for some time after child-bearing. Immediately after delivery, the discharge is of blood, which in a few days gradually diminishes, and is followed by an effusion of a greenish fluid of a peculiar odour. The flow of the lochia continues in different women from a week to a month; in some women, the red colour disappears and comes back again for some time, till the womb is reduced to its original size. It is a desirable thing that this flow should proceed with regularity, as many untoward symptoms take place, either when it is checked suddenly, or when the flow is greater than usual. Various circumstances occasion the suppression of the lochia, as passions of the mind, cold drink, or cold air applied; and the symptoms consequent are often very alarming. Great fever, heat, and restlessness, pain of the head, back, and loins, delirium, inflammation of the womb, colic pains, costiveness, are a few of those symptoms. The measures to be pursued for counteracting them, and for restoring the flow of the lochia, are the warm bath, if the patient can bear it; fomentations to the abdomen, large emollient clysters, and sudorific medicines, as antimony, or the acetate of ammonia, assisted by copious diluent drinks. When a profuse and general perspiration breaks out, the relief is very rapid and unexpected, and a practitioner will find a patient whom he left at his last visit in the most alarming distress, at his next in a great measure relieved and free from danger.

When the patient too soon attempts

to get up, there is great danger of renewing the flow of the red lochia, by which a great degree of debility is induced, and the health in consequence is materially injured. It should be strongly inculcated on women in child-bed, that it is highly imprudent to use any great exertion during the continuance of the lochia, and that they should not presume on their feeling soon well. When an immoderate flow of the lochia has occurred, it is to be checked by confining the patient to the horizontal posture, by keeping the bowels easy by mild laxatives, by giving dry diet, and some astringent julep, made with sulphuric acid.

SORE NIPPLES.

Women who are nursing are very subject to excoriation and chapping about the nipples, and the pain is then often so severe when the infant is put to the breast, that it is with great difficulty they can continue to nurse. Something may be done before delivery to prevent this soreness of the nipples coming on, by a frequent use of astringent washes, as tincture of myrrh, or infusion of oak bark; and when it has come on, the same washes are to be applied; or a solution of white vitriol in rose-water, taking care to wash off, with a little milk and water, any foreign substance before the child begins to suck. Sometimes, in cases of sore nipples, great pain is occasioned by the child capriciously or playfully seizing the nipple often, and letting it go again. This is said to be prevented by sprinkling on the nipple, when the child has done sucking, equal parts of powdered gum arabic and sugar-candy. The sweetness induces him to keep his hold; and the powder absorbs the sharp fluid which comes from the clefts, and also defends the part. In some cases, it may be necessary to suspend nursing for a short time, till the chops and excoriations are healed, drawing off the milk by nipple-glasses contrived for the purpose. Or the child may be made to suck through a cow's teat, properly prepared and

adapted to the nipple of the mother. Some women have very small nipples, and such as scarcely project from the breast; and it is extremely difficult for a first child, especially if it be weakly, to perform the function of sucking. In such cases, the nipple is to be drawn out by the suction of an elder child, or of some adult who is capable of doing it; but if much violence be used in this way, inflammation may be induced. By perseverance, some unlikely nipples will be so drawn out as easily to nourish the child.

PHLEGMATIA DOLENS.

Phlegmatia dolens is a peculiar swelling of the leg, to which women are occasionally liable after child-birth. It is a tense, clear swelling of one of the limbs, generally beginning at the upper part, and increasing pretty quickly; the pain is considerable, and accompanied with fever. It occurs a few days after delivery, and commonly begins at the groin, the hip, or top of the thigh, being preceded by shiverings, and some feverish symptoms. There are pain, weight, and stiffness, and difficulty of moving either the body or lower limb. The part complained of is generally hotter than natural, a little swelled, but not discoloured; at length the pain and swelling increase, and extend to the leg and foot: at which time the pain diminishes, except on motion. The whole extremity is now swelled; but it does not, like a dropsical swelling, change its bulk by posture, nor does it pit upon pressure; being tense, elastic, and very painful when touched. After continuing for some days, the pain and swelling abate; at first in the upper part of the limb, and afterwards in the leg and foot. When the acute symptoms are over, the patient feels much weakened, and the limb is stiff, heavy, and weak. It seldom returns to its former size, but remains through life stiff and enlarged, and easily susceptible of cold. Phlegmatia dolens is tedious in its progress, and difficult of cure: but it rarely goes on to suppuration or gan-

grene, though instances sometimes occur of these troublesome or fatal terminations.

When this disease occurs, we are to ascertain whether it be alone, or accompanied with any feverish, or other affection, and to proceed accordingly. If the inflammatory symptoms are considerable, a bleeding from the arm will be proper, as also purging, and antimonials; but such evacuations would evidently be misapplied, if the patient has been debilitated by flooding or previous illness. If the swelled leg be the primary object of our care, one of the best applications at the beginning, is to foment the parts with flannels wrung out of hot vinegar, continuing this for many hours together; assisting its effects by giving purgative medicines of considerable activity. Other fomentations may be used, as the muriate of ammonia, or a solution of sugar of lead. Leeches should be applied in considerable numbers to the swelled limb, and their bites covered with an emollient poultice, to encourage the bleeding. When the acute symptoms are over, we are to attempt the diminution of the swelling by frictions with camphorated oil, or other stimulant liniments; and when the general health and strength will admit of it, a brisk purgative may be given, such as jalap, gamboge, or scammony, all of which have a tendency to act on the lymphatic system. When the swelling continues long and obstinately, mercurial ointment may be rubbed on the limb, both for the sake of local effect, and to bring the system in some measure under the influence of the remedy.

STILL-BORN INFANTS.

In general, the child, as soon as it is born, cries stoutly, giving proof that its respiration has fairly begun, and that it is capable of living, detached from its parent. But in other cases, no sign of life appears for some time, and the child is said to be *still-born*. By proper means, it may sometimes be recovered from that state. When

there is any pulsation felt in the navel-string, the child should not be detached from the mother, but warmth should be applied to its body by flannels; the nostrils should be touched with a little hartshorn, the breast should be rubbed with spirits, and the buttocks and soles of the feet should be gently slapped with the open hand. If the after-birth should in the meanwhile be detached, which is known by the cord becoming longer, the infant is to be separated entirely, and the cord being secured by a slip-knot, the child is to be put into water, warmed nearly to the heat of the human blood, keeping the head uppermost, and the mouth and nostrils out of the water. Artificial breathing is to be practised by some person who understands the way of doing it, either by the mouth or by a proper syringe. If the pulsation of the heart be not restored, the infant is to be taken out of the water, placed before the fire, carefully rubbed, and wrapt in warm flannel. A clyster, made of a few table-spoonfuls of warm water with a tea-spoonful of spirits, is to be thrown up with moderate force. The apparent death may however arise from a cause analogous to that of apoplexy in adults; and in these cases we must allow a little blood to be discharged from the end of the cord. We do this the more freely, when the shape of the head is altered from what is natural, when the colour of the face is dark and livid, and when the pulsation in the cord is oppressed. The quantity of blood which we may allow to flow, is from one table-spoonful to two. If the child does not breathe after this discharge, the cord is to be tied, and artificial breathing attempted. All stimulating and irritating means in these cases are to be avoided. Sometimes, though a child breathes and cries at first, it very soon becomes pale, and the pulsation of the heart becomes feeble. Stimulants are then to be applied to the surface, as brandy or hartshorn: occasionally we succeed by these means in restoring the breathing and circulation, but generally we fail. Some children are born,

having a purple colour of the extremities, and with the breathing unnatural. This probably arises from mal-conformation of the heart or lungs, and the infant soon dies.

CHILD-BED FEVER.

So many diseases accompanied with feverish excitement, occur in the puerperal state, that the appellation at the head of this article might be supposed to apply to a great variety of ailments; but by medical men it is most commonly restricted to a disease attended with peculiar symptoms, and of great malignity; though they are not all agreed either upon the exact nature or cause of the train of symptoms which occur, or upon the method of treatment which is the most successful in their removal. In treating of a disease which has been the occasion of much controversy among physicians, it would be quite inexpedient to bring disputed points before the general reader; but we may say a little to quiet the minds, and inform the judgments, of those who are likely to consult this work. When a woman, within three or five days after delivery, is seized with shivering, followed by heat of the skin, thirst, flushing, headache, &c. she need not be apprehensive that she is seized with *puerperal or child-bed fever*; these symptoms may constitute the *milk-fever*, which soon abates when the bowels are opened, and when the child sucks freely; they may arise from suppression of the lochia, which are often restored by warm fomentations and a dose of castor oil; or they may be produced by a little cold or imprudence in the newly delivered female fancying herself too well; and although such symptoms are really febrile, they do not constitute the true puerperal fever. But when a woman has had a comparatively easy labour, when the discharge is moderate, when the milk has begun to flow, when, between forty-eight hours and six days after delivery, she is seized towards evening with cold and shivering, when she afterwards becomes hot and rest-

less, when she loses all care about her child, lately so interesting to her; when she has a fixed pain over the eye-brows, or a feeling of tension, as if a cord were forcibly bound round the forehead, when the pulse is small and quick, when the belly is tender, tense and sore to the touch—then it is time for the friends of the patient to take the alarm, and to get prompt assistance, taking care not to agitate or distress the patient herself, by showing their anxiety or apprehensions.

Puerperal fever is distinguished by frequency of pulse, oppression, sickness, and headache, by want of sleep, sometimes with delirium; by pain in the belly, slight at first, and afterwards increasing, so that the patient can not bear the weight of the bed-clothes. The eyes are without animation, the countenance is pale and ghastly, and the whole appearance indicates great oppression and anxiety. The patient commonly lies on her back, and if laid on her side, soon returns to her former posture. Vomiting sometimes occurs very early; and as the disease advances, it is so severe that nothing will remain on the stomach; and often there is a discharge of dark-coloured fetid matter, resembling coffee-grounds. The heat of the skin is not very great, the pulse soon becomes feeble, the tongue is brown, but the patient does not complain much of thirst. At first, the bowels are bound, but there is soon a discharge of fetid frothy stools. In many cases, neither the milk nor the lochia are suppressed. The patient inquires but little after her child. Soon her strength sinks, the natural evacuations are made involuntarily, the mouth and tongue become foul and dark-coloured, delirium takes place, and the patient dies, generally about the fifth day of the disease, though some linger on a little longer. The fever generally attacks on the second or third day after delivery.

No particular circumstance in the labour seems to be instrumental in producing this disease. It comes on after the most natural and easy de-

livery; it also may come on after a flooding, which has weakened the patient so much, that we might suppose the occurrence of inflammation or fever impossible. The disease in many cases is brought on by exposure to cold, premature exertion, irregularities in diet, and agitation of mind.

Puerperal fever occasionally prevails as an epidemic in particular districts; and it has occurred in hospitals, even when well regulated, at a time when it has not been prevalent in the city where the hospital is situated. It has also, in some districts, appeared to follow the practice of individual midwives or accoucheurs; all those who have been delivered by certain practitioners for some weeks, having been seized with the disease; while other practitioners, in the same city, of equally extensive practice, have not had any case under their care. Many physicians think the progress of the complaint to be decidedly that of a typhoid fever conjoined with inflammation of the peritoneum. It is certain, that in the majority of instances, after death from this disease, the peritoneum has been found inflamed and covered with an albuminous effusion, which latter circumstance induced the older French physicians to call it a deposition of milk, though the disease has evidently no connexion whatever with that secretion.

We have partly, in our introductory remarks, anticipated the mention of some of the particulars which distinguish the true puerperal fever from the other febrile affections of child-bed. It is distinguished from inflammation of the peritoneum, occurring under ordinary circumstances, by there being more despondency, general debility, and headache; while the thirst, heat of the skin, and flushing of the face are less. In common peritoneal inflammation, the pain increases rapidly when it has once begun, and is very much increased by pressure; the attending fever is more inflammatory than typhoid. In inflammation of the womb, there is much pain when that

region is pressed; also pain in the back, shooting to the groins, difficulty of voiding urine, and suppression of the lochia. In puerperal fever, the pain and swelling are most remarkable over the pit of the stomach, and when pressure is made there, a doughy feel is communicated to the hand of the examiner.

In hospitals, the disease is most generally fatal. The earlier the attack, the more tense the belly; and the less complaint the patient makes, the danger is the greater. If the pulse continues at its first frequency, or if it increases, the disease will be likely to prove mortal. If the fomentation of the belly does good, if the pain on pressure is less, if there be an equal, warm, and copious perspiration, our hopes are somewhat better.

The treatment of this fever is a subject of great difficulty. In the early stage of the disease, when the strength is not yet greatly impaired, blood-letting should unquestionably be employed, and that freely. When the disease has lasted several days, and symptoms of debility have come on, then in all probability large bleedings from the arm would only hasten on the fatal event. Leeches to the abdomen will be proper in nearly all cases; and after their application, if this part continues still painful and tense, covering it with cloths wet with cold water is a practice strongly recommended by many practitioners. An emetic of ipecacuanha, on the very first appearance of the dis-

ease, has seemed in some instances to check its progress, and in others to render it milder; but on the second, or any subsequent day, emetics are attended with no benefit whatever, but rather with harm. From the earliest period of the disease, we are to pay attention to the bowels, and procure regular and free evacuation of them, even by medicines of considerable activity; taking care to prevent and check any exhausting diarrhœa. The laxatives we employ are the compound powder of jalap, or calomel in frequently repeated and pretty large doses, from six to eight grains, three times a day, working it off by infusion of senna, or by neutral salts. A clyster should be early thrown up, and the bowels fomented. We also expect good from an equable and gentle perspiration, which in this disease we may attempt to bring out by Dover's powder, by camphor, or warm sudorifics. The patient may partake of light and easily digested food, as animal jellies, sago, and the like. Such seems to be the safest practice, and in some cases it is successful; but puerperal fever is always to be regarded as a very dangerous disease. When the woman is to recover, the unfavourable symptoms abate but slowly, and the weakness continues long.

When the disease has occurred in hospitals, the lying-in wards should be shut up for some time, after having been completely fumigated and white-washed.

APPENDIX

THE USES AND DOSES OF MEDICINES.

In giving an account of diseases and their remedies, we have endeavoured to be as distinct and intelligible as possible; and to put it in the power of any sensible person to know generally what should be done, in most of the usual ailments to which the human frame is liable. But, on the other hand, we have been careful to give no encouragement to nursery or domestic quackery. We have, on the contrary, endeavoured to point out the risk and folly of attempting to take the management, of even the most trifling diseases, out of the hands of the regular physician. When it is considered, what unexpected difficulties present themselves to the best informed and most experienced, even in the management of complaints apparently very simple, we would presume that no prudent person, not brought up to the medical profession, would venture to treat a case of any severity. In a large town or city, there can be no motive or temptation to do so, where professional assistance can immediately be had; and where drugs can be readily procured, almost at any hour of the day or night. But there are many conceivable situations, where professional advice can not be so easily procured; yet something must promptly be done, when accidents or diseases occur, to abate the sufferings and preserve the life of the patient. In the smaller class of vessels, which must go to sea, often on distant voyages, without a regular surgeon, and in the newly settled and more retired parts of the country, some knowledge of the powers and quantities of medicines is unquestionably highly useful. It is for the sake of persons in these, and similar situations, that we here subjoin a short notice of the uses and doses of some of the more common medicines.

The doses of medicines mentioned in the following list, are those which are sufficient for a grown-up person of moderate strength. For young persons under

fourteen years of age, they must be diminished in nearly the following proportions. If the dose for a person of twenty years of age be twenty grains, then for one of

14 years it will be 14 to 16 grains.

7 - - - - - 10 grains, or about one-half.

5 - - - - - 7 to 8 grains, one-third.

3 - - - - - 5 grains, one-fourth.

1 - - - - - 3 grains, one-seventh.

6 months, - - 2 grains, one-tenth.

We shall mention separately the doses of medicines proper for infants and very young children.

The doses of medicines should always be weighed or measured, not guessed. They who are likely to be engaged in administering them, should have a graduated measure, for *minims*, (drops,) for drachms, and for ounces. Sixty drops are considered equal to a drachm; but the size of drops varies, according to the size of the phial containing the liquid, the shape of the rim, and the quantity contained in it. A common sized tea-spoonful is considered equal to a drachm, and a table-spoonful to half an ounce: but this is a very unsafe mode of estimating the doses of active medicines, as the size of the spoons in common use differs very considerably. A set of Apothecaries' weights should always be kept.

EMETICS,

Medicines to produce Vomiting.

FOR GROWN-UP PERSONS.

Powder of Ipecacuanha.—Dose, from fifteen to twenty grains: it may be given in any fluid. When there is any choice of time, the best is in the evening.

Tartrate of Antimony, called *Tartar Emetic*.—Two grains dissolved in four ounces of hot water: a table-spoonful every ten minutes, until vomiting occurs.

Ipecacuanha and *Tartar Emetic*.—Fifteen grains of the powder of *ipecacuanha* combined with one grain of tartar emetic, constitutes a more certain and active emetic than the *ipecacuanha* alone.

Wine of Antimony.—Dose, two tea-spoonfuls every fifteen minutes, until vomiting is produced.

Solution of Tartar Emetic.—Take of tartar emetic, six grains; of white sugar, one drachm; and of pure water, four ounces: mix them well together. Dose, a table-spoonful every ten or fifteen minutes, until it operates. This solution is, in all cases, a preferable medicine to the wine of antimony.

Sulphate of Zinc, White Vitriol.—Thirty grains, when a speedy emetic is wanted, as in cases of poisoning.

A dessert-spoonful of *Mustard* may be taken, when other emetics are not at hand; or the stomach may be emptied by tickling the fauces with a feather, or the stomach-pump may be used.

FOR INFANTS AND YOUNG CHILDREN.

Ipecacuanha in powder.—From three to twelve grains.

Wine of Ipecacuanha.—From fifteen to twenty drops every quarter of an hour, until vomiting occurs.

LAXATIVES AND PURGATIVES,

To open the Bowels.

FOR GROWN-UP PERSONS.

Saline Purgatives, as the sulphate of soda (Glauber's salt); sulphate of magnesia (Epsom salt); tartrate of potass and soda (Rochelle salt); dose of each, an ounce, dissolved in four ounces of tepid water, and taken in the morning.

Phosphate of Soda, (tasteless salt).—Dose, six drachms; it may be taken in broth or beef-tea, instead of common salt.

Castor Oil.—From an ounce to an ounce and a half.

Senna Leaves.—Three drachms infused in half a pint of water, like tea: a spoonful of tamarinds adds to its efficacy, and renders the medicine more pleasant.

Sulphate of Potass with Sulphur, (sal polychrest,) from one to two drachms.

Scammony, in powder, from three to eight grains.

Jalap, in powder, from ten to twenty grains.

Gamboge, from two to five grains.

Rhubarb, in powder, from ten to twenty or twenty-five grains.

The above medicines may be usefully combined with from three to five grains

of calomel. Two of them may be also combined together, as jalap and scammony, or gamboge and rhubarb.

Sulphur and Cream of Tartar.—Take of flowers of sulphur, half an ounce; cream of tartar, one ounce: mix them with a sufficient quantity of molasses, and give a tea-spoonful three or four times a day. This is a good laxative for children of a gross habit, when affected with boils or eruptions on the skin.

Aloes.—An excellent purgative; dose, five grains; may be taken in pills, with various combinations.

Calomel is seldom used alone as a purgative; but, in some persons, a few grains, from five to ten, move the bowels freely.

Compound Powder of Jalap.—Dose, from forty grains to a drachm.

Oil of Turpentine, in obstinate cases, an ounce or two.

Oil of Turpentine and Castor Oil.—Take two drachms of turpentine, and six or eight drachms of castor oil; mix them well together, for a dose. This combination is proper, when a prompt action on the bowels is required, as in affections of the brain, &c.

Purging Draught.—Take of Epsom salt, Glauber's salt, each two drachms; mint-water, an ounce and a half; antimonial wine, forty or fifty drops; tincture of senna, two drachms. Mix.

This is a very valuable and effectual purgative for all acute diseases, and most common purposes. If a purgative which will operate quickly and actively be required, the following will be found useful:

Compound Senna Tea.—Take of senna leaves, one ounce; manna, half an ounce; cream of tartar, five drachms; cinnamon bark, half an ounce; boiling water, a pint and a half. Infuse for two hours. The dose is a wine-glassful every two or three hours.

Purgative Pills.—Take of compound extract of colocynth, compound rhubarb pill, each, half a drachm; calomel, twelve grains; oil of caraway, five drops; syrup, a sufficient quantity to form the whole into a mass. Divide into fifteen pills.

These are excellent purgative pills in fevers, inflammations, and all cases in which an active purgative is required. In doses of from two to three at bed-time, they procure with great certainty, a copious evacuation of the bowels on the next day. One of these pills, or even half a one, generally operates as a very mild but effectual laxative, in cases of costiveness, irregularity of the bowels, &c.

Laxative Pills.—Take of compound

extract of colocynth, half a drachm; compound rhubarb pill, a scruple; Castile soap, ten grains; oil of juniper, five drops. Beat them into a mass, and divide into twelve pills. One pill taken at bed-time is generally sufficient to procure an opening of the bowels, but some persons will require two. They are excellent pills for occasional use in costiveness, bilious affections, and on all ordinary occasions.

Pills of Rhubarb and Soap.—Take of powdered rhubarb, one drachm; white soap, ten grains, and a sufficiency of water to make them into a soft mass. Mix, and divide into fifteen pills: of these, three will act as a gentle laxative in cases of costiveness.

Purgative Powder.—Take of calomel, two grains; jalap and rhubarb, in powder, each, five grains. Mix.

Laxative Powder.—Take of powdered rhubarb, one scruple; calcined magnesia, ten grains; and oil of cinnamon, one drop. Mix. This is a good prescription in cases of acidity of the stomach or bowels, when a gentle opening medicine is required.

FOR INFANTS AND YOUNG CHILDREN.

We may here repeat, what we have said under *Weaning*, that the bowels of infants are not to be teased with medicines at that period; and we may extend the prohibition both before and after, and recommend that purgatives should never be given except on occasions of real and obvious necessity. The bowels of children certainly require to be watched with the utmost attention by those who have the care of their earlier years. In the playfulness and vivacity of youth, they are apt to neglect the calls of nature, and are in much danger of hurting themselves by the mixture of articles which they eat; but, in general, they may be kept right by a very moderate allowance of drugs; and the delicacy of their bowels and other parts of the digestive organs is so great, that parents and nurses should be very cautious how they tamper with them. It was at one time very much the fashion in domestic medicine, to use *calomel* on every trifling occasion; but, however convenient it may appear from its small bulk and insipidity, we have given, in the article *CALOMEL*, what we consider as a proper caution against its indiscriminate use.

Castor Oil.—From a tea-spoonful to a dessert-spoonful.

Castor Oil Mixture.—Take of powdered gum arabic, two drachms; white sugar, one drachm; and pure water, two ounces. Mix these well together in a mortar; then

gradually add, mixing it well with the above, an ounce and a half of castor oil; and then add to the whole, two ounces of mint or cinnamon-water. Dose, a table-spoonful every two hours.

Manna.—From half a drachm to two drachms.

Gamboge.—From one to two grains.

Scammony.—From one to three grains.

Jalap.—From four to eight grains.

Rhubarb.—From two to twelve grains.

Magnesia.—From five to fifteen grains.

Infusion of Senna, of different strength, according to circumstances.

Two of the above medicines may, on some occasions, be usefully conjoined, as rhubarb and magnesia, or jalap and scammony; or the infusion of senna may be sweetened with manna.

LAXATIVE AND PURGATIVE CLYSTERS.

FOR GROWN-UP PERSONS.

Take of common salt, a dessert-spoonful; tepid water, or water-gruel, a pint; add a table-spoonful of sweet oil, or melted butter.

A more active clyster is made as follows:

Take of strong infusion of senna, a pint; Glauber's salt, or Epsom salt, an ounce and a half. Sometimes, to increase the purgative effect, a spoonful of oil of turpentine may be added.

FOR INFANTS AND CHILDREN

Clysters may be made in the same way as for adults, diminishing the quantity of fluid, and keeping out a portion of the stimulating ingredient, whether salt or senna.

CARMINATIVES,

To expel Wind.

FOR GROWN-UP PERSONS.

Ten or fifteen drops of the *Essence of Peppermint*, on a small bit of sugar.

Assafœtida Pills, three at bed-time.

Carminative Clyster.—Take of infusion of senna, eight ounces; dissolve in this infusion, assafœtida, a drachm and a half; add peppermint-water, one ounce. To be mixed together, and thrown up, pretty warm.

FOR INFANTS AND CHILDREN.

Sugar of Anise, two grains.

Sweetened Cinnamon-Water, one or two tea-spoonfuls.

Essence of Peppermint, from one to three drops.

DIURETICS,

Or Medicines that promote the flow of Urine.

FOR GROWN-UP PERSONS.

Take of cream of tartar, one drachm; borax, half a drachm. Mix. Dissolve in three ounces of tepid water; this quantity to be taken three times a day.

Sweet Spirits of Nitre.—A teaspoonful in warm water, four or five times a day.

Acetate of Potass.—From twenty grains to a drachm three times a day.

Nitrate of Potass, (saltpetre.)—Thirty to sixty grains in a pint of gruel. This quantity to be used as a common drink in the twenty-four hours.

Oil of Juniper.—Four drops on white sugar.

Squill.—One grain in powder, mixed with powdered cinnamon, three times a day; or, two grains of squill, with ten grains of powdered nitre, to be mixed in sugar and water, or molasses, and repeated twice or thrice a day.

Decoction of Broom-tops.—A pint a day.

Diuretic powder.—Take of powdered nitre, one drachm; calomel, twelve grains; powdered squills, twelve grains; powdered digitalis, three grains; for twelve powders; one to be taken every three hours; in cases of dropsy of the chest or abdomen.

Diuretic mixture.—Take of sweet spirits of nitre, one ounce; tincture of squill, two drachms. Mix. Dose, a tea-spoonful five or six times a day, given in a tea-cupful of the following, namely: juniper berries, bruised, one ounce; and cream of tartar, half an ounce; infused in a pint of boiling water.

Infusion of Juniper berries in cider.—Take of bruised juniper berries, mustard seed, and ginger root, of each half an ounce; grated horse-raddish and parsley root, of each one ounce; and infuse them in a quart of old sound cider. The dose is a wine-glassful, three or four times a day. This infusion has been found useful in cases of general dropsy occurring in patients very much debilitated and unconnected with inflammation, or disorganization of any internal organ. When fever or inflammation is present, it would be improper.

FOR INFANTS AND CHILDREN.

Nitrate of Potass, (saltpetre) one drachm; water, eight ounces. Dissolve, and sweeten with refined sugar. Dose, from a dessert to a table-spoonful every three hours, till the water flows freely.

Sweet Spirits of Nitre, one drachm,

water, three ounces. To be mixed together, and a little syrup added.

A table-spoonful every two hours.

A drink made by dissolving a drachm of cream of tartar in a quart of boiling water, and sweetening it with sugar, may be used, to increase the urine.

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DIAPHORETICS AND SUDORIFICS,

To produce Perspiration or Sweating.

FOR GROWN-UP PERSONS.

By regulating the doses of the following medicines, and the drink of the patient, as also the quantity of his bed-clothes, we can produce a perspiration more or less copious.

Antimonial medicines are excellent diaphoretics. A grain of the tartrate of antimony may be dissolved in five ounces of hot water; and a table-spoonful of this solution given every two hours, will generally occasion perspiration. The antimonial powder, three grains in a little jelly, every three hours, will have the same effect. Or James's powder, three or four grains, in honey, jelly, or marmalade, every three hours.

Diaphoretic fever powder.—Take of nitre, powdered, one drachm; tartar emetic, one grain; gum arabic, half a drachm; for twelve powders; one to be taken every three hours.

A mixture of narcotic and emetic medicines, makes an excellent sudorific. Such are *Dover's powder*, and the diaphoretic draught, made by adding thirty drops of laudanum to forty drops of antimonial wine, and the same quantity of sweet spirits of nitre, to be taken in an ounce of cinnamon or peppermint water.

These combinations of opium should be avoided when the skin is very hot and dry; but they may be used in rheumatism and other febrile disorders, after the violent excitement is in some degree removed by bleeding or purging.

Camphor.—Two grains of camphor reduced to powder by the help of a little spirit of wine, and half a grain of opium, made into a bolus; to be repeated only once or twice at the interval of four hours.

Diluted Acetate of Ammonia, Spirit of Mindererus.—From two drachms to half an ounce, in an equal quantity of water.

Saline mixture.—Take of the fresh juice of lemons, an ounce and a half; and of the sub-carbonate of potass, sufficient to saturate it; then add, of white sugar, one or two drachms; of tartar emetic, one grain; and of pure water, an ounce and a

half, and the same quantity of cinnamon water. Dose, a table-spoonful every two hours. This is an excellent prescription in most cases of fever, after bleeding.

Diminished doses of *Ipecacuanha* may also be used as diaphoretics.

FOR INFANTS AND CHILDREN.

Tartrate of Antimony, (Tartar Emetic) one grain, carefully dissolved in four ounces of boiling water.

Dose of the solution, from one to two tea-spoonfuls every three hours.

Antimonial Wine.—From four to ten drops, in a tea-spoonful of tepid water, every two hours.

Take of tartaric acid, one drachm; carbonate of potass, four scruples. Dissolve each of them separately in an ounce of water, add them together, and, when the effervescence is over, add, syrup, two drachms; cinnamon water, half an ounce; water, four ounces.

Dose, a dessert-spoonful every two hours.

Diaphoretic mixture.—Take of sweet spirits of nitre, four drachms; water, two ounces; cinnamon water, two ounces; sugar, four drachms; tartar emetic, one grain. Mix. Dose, a tea-spoonful every three hours.

EXPECTORANTS,

To bring Phlegm from the Lungs.

Squill.—The powder of the dried root, one grain night and morning, made into pills with powdered cinnamon and ginger. Or vinegar of squill, a small tea-spoonful, with simple syrup, in a little peppermint water three times a day.

Ipecacuanha.—One grain three times a day, made into lozenges.

Sulphate of Zinc.—One grain, with powdered ginger, twice a day.

The *Steam of Hot Water* inhaled into the lungs.

Expectorant mixture.—Take of mucilage of gum arabic, four ounces; oxymel of squill, four drachms; tartar emetic, two grains; sweet spirits of nitre, three drachms. Mix. A dessert-spoonful to be taken every three hours.

Brown mixture.—Take of the powdered extract of liquorice, and of powdered gum arabic, of each two drachms; dissolve in four ounces of warm water; then add sweet spirits of nitre, two drachms; tartar emetic, one grain; and tincture of opium, forty to sixty drops, or camphorated tincture of opium, one drachm. Mix. The dose is a table-spoonful occasionally. This is a good prescription in cases of catarrh,

towards the decline of the disease, when a troublesome cough still remains.

Expectorant pills.—Take of extract of henbane, eight grains; extract of belladonna, two grains; powdered ipecacuanha, four grains; for eight pills. Dose, one every three hours.

The same may be used for children, diminishing the dose.

ABSORBENT MEDICINES,

Or Correctors of Acidity in the Stomach, and of Heartburn.

FOR GROWN-UP PERSONS.

Carbonate of Potass, or carbonate of soda, from ten to thirty grains, in any fluid vehicle, not spirituous.

Prepared Chalk, when the bowels are loose; from twenty grains to two drachms in cinnamon water, or milk.

Calcined Magnesia, when the bowels are costive; to be taken in the same way. The above two articles meeting with an acid in the stomach form a neutral salt: that with chalk is binding; with magnesia laxative.

Water of super-carbonate of Potass, or

Water of super-carbonate of Soda.—A wine-glassful, three or four times a day.

Lime Water.—A small wine-glassful, with a table-spoonful of milk, three times a day.

FOR INFANTS AND CHILDREN.

Calcined Magnesia, or *Prepared Chalk* may be given in any liquid, or mixed with the food, in doses of from three to ten grains.

ANODYNES,

Medicines to allay Pain, and procure Sleep.

FOR GROWN-UP PERSONS.

Opium.—One or two grains. It can be made into a pill without any addition. Opiate pills may be made also by taking equal weights of opium and aromatic powder, or powdered cinnamon, and forming them into a mass with simple syrup. This mass may be divided, so as to make the pills to contain each one grain of opium.

The *Paregoric Elixir* may be given as an anodyne. The English in the dose of four drachms in a little water, the Scotch in the dose of one drachm.

Anodyne Draught.—Take of laudanum, thirty drops; cinnamon water, one ounce. To be sweetened with dissolved jelly or syrup, and taken at once.

Or, sulphate of morphia, two grains; cinnamon water, two ounces; sugar, one drachm.

Dose, a teaspoonful every three hours.

Anodyne Clyster.—To one ounce of olive oil, and three of thin, made starch, add from one to three grains of powdered opium, or thirty, forty, or sixty drops of laudanum, and mix the whole well together.

This clyster is particularly useful in cases in which there is great irritation about the rectum, bladder or urinary passages, and in dysentery and diarrhœa, after proper evacuations. The relief obtained is sometimes almost instantaneous.

When opium binds the bowels too much, *Henbane* in extract or tincture may be used in larger doses than opium; three grains of the extract, or a drachm of the tincture.

FOR INFANTS AND CHILDREN.

Opiates are so hazardous, that we feel reluctant to sanction the use of any one of them *internally*.

The dose of laudanum is from three to eight drops.

For *external* use, *Anodyne Balsam*, or the tincture of soap with opium, rubbed on the belly or along the spine, in the quantity of a dessert or table-spoonful, in many cases allays pain very effectually.

ASTRINGENTS,

Or Medicines to lessen Discharges of Fluids.

FOR GROWN-UP PERSONS.

1. *In Looseness of the Bowels*; after being sure that they are cleared of all irritating matter, as much as possible.

Astringent Drops.—Take of tincture of rhubarb, two drachms; tincture of opium, one drachm. Mix them together. Thirty-six drops to be taken four times a day in a little water.

Chalk Mixture.—Take of prepared chalk, one ounce; refined sugar, half an ounce; mucilage of gum arabic, two ounces. Triturate together, and then gradually add, of water, two pints and a half; cinnamon water, two ounces.

Of this, a small cupful may be taken four times a day; and if it be thought necessary to increase its astringent power, ten drops of tincture of opium, or half a drachm of the tincture of kino, may be added to each dose.

2. *Astringents, in discharges of Blood from the Lungs or Womb.*

Elixir of Vitriol, or diluted *Sulphuric*

Acid, fifteen drops in cold water, four times a day.

Infuse a handful of dried *Red Rose Leaves* in a quart of boiling water. Strain off the liquor, and add of diluted sulphuric acid thirty drops; simple syrup, two ounces. A table-spoonful to be taken every two hours, when necessary, during a discharge of blood. Other measures at the same time being employed for the cure of the disease.

3. *Astringents, to be thrown into the Vagina for the cure of Whites.*

Thirty grains of *White Vitriol* dissolved in a pint of water.

Or, take of oak bark, two ounces; water, two pints. Boil to one pint; to which, when strained, add one drachm of alum.

ASTRINGENTS,

To check Looseness of Children.

Astringent Mixture.—Take of best Turkey rhubarb, twenty grains; prepared chalk, one drachm; Dover's powder, ten grains; simple cinnamon water, half an ounce; spring water, two ounces and a half. Mix them carefully.

Dose, from one to four tea-spoonfuls every six hours. This is found particularly useful in some cases of habitual looseness.

Stronger Astringent Mixture.—Take of electuary of catechu, two drachms; prepared chalk, half an ounce; simple cinnamon water, one ounce; spring water, five ounces. Mix them.

Dose, from two tea-spoonfuls to a table-spoonful every three or four hours. This may be rendered still more powerful in checking debilitating looseness, by the addition of a small proportion of laudanum to each dose.

(The above two prescriptions are from Professor Hamilton.)

TO CHECK VOMITING.

The Effervescing Draughts.

Toast water taken cold in table-spoonful doses.

When there is not much fever present: *Oxyde of Bismuth.*—Ten grains every two hours.

An *Opium Plaster* to the pit of the stomach.

Lime water, a tea-spoonful, with the same quantity of milk.

TONICS AND BITTERS.

For Strengthening the System.

Peruvian Bark.—A tea-spoonful every day, in milk or port wine.

Sulphate of Quinia, a grain repeated according to circumstances.

The following is a beautiful prescription for administering the quinine: Take of sulphate of quinia, ten grains; elixir of vitriol, half a drachm; white sugar, four ounces; water, four ounces. Dose, a dessert-spoonful.

Powdered Gentian Root.—Ten grains to twenty.

Colombo.—Ten grains of the powder twice a day.

Decoction of Quassia.—A tea-cupful twice a day.

Infusion of Chamomile.—An English pint in the course of the day.

The stomachic tinctures should not be taken, unless by the prescription of a medical practitioner, for fear of inducing a habit of dram-drinking.

WORM MEDICINES.

Except the *Neutral Salts*, almost any purgative may be used to expel worms.

Take of *Calomel*, four grains; powder of *Jalap*, eight grains; powder of *Aloes*, three grains. To be mixed together and given in jelly, honey, or conserve of roses.

Five grains of *Aloes*, with three of *Gamboge* taken at bed-time, and followed next morning by a tea-cupful of strong infusion of *Senna*.

A tea-spoonful of *Common Salt*, taken in the morning when the stomach is empty.

Two or three cloves of *Garlic* may be swallowed in the morning, for a length of time. Or three grains of *Assafetida*, made into a pill.

Clysters made of senna, with a dessert-spoonful of tincture of aloes, may be thrown up, to destroy the small white worms.

A dessert-spoonful of *Oil of Turpentine* will in many cases carry off the tape-worm.

FOR INFANTS AND CHILDREN.

Diminishing the dose in proportion to the age.

FOR BURNS AND SCALDS.

On the very first occurrence of the accident, *Cold* is to be applied. Cold water is always at hand. A little vinegar may be added, if the skin is not broken; or we may apply sal ammoniac dissolved in water; or weak spirits and water. When the outer skin is destroyed, a liniment made

by mixing together equal parts of linseed oil and lime-water, must be slightly applied, and the parts defended from the air. Cotton, when there is no danger of its sticking in the injured part, is an excellent protector for burnt surfaces.

EYE-WATERS.

When there is much inflammation, *decoction of Quince Seeds*, or *infusion of the pith of Sassafras*. When the inflammation is abated, twelve grains of the *Sulphate of Zinc* dissolved in six ounces of rose water.

Six to ten grains of *Acetate of Zinc* in four ounces of rose water.

Twelve grains of *Sugar of Lead* dissolved in six ounces of spring water; with the addition of a drachm of distilled vinegar.

The quantity of sugar of lead may be increased if necessary.

GARGLES.

A good domestic gargle for sore throats is made by using *Vinegar*, diluted with warm water, and sweetened with honey or sugar.

Infusion of red rose leaves, acidulated with diluted sulphuric acid.

Or a gargle may be made with port wine and a little vinegar, or strong sage tea, with the addition of alum and honey.

Gargles should always be of such a degree of sharpness as to cause a temporary smarting of the throat.

DRESSINGS AND PLASTERS

For various purposes.

For dressing blisters. Hog's lard, or spermaceti ointment.

For ulcers. Turner's cerate; or, when a stimulating action is wanted, basilicon or red precipitate or verdigris ointment.

For scrofulous sores, iodine ointment, varied occasionally with cerate, or simple ointment made of wax and oil.

Adhesive plaster is used for keeping cut surfaces in contact; but in some situations, one or two stitches will be necessary accompaniments. Straps of adhesive plaster are used for giving support to the skin of ulcerated legs; and to make an equal pressure on dropsical swellings.

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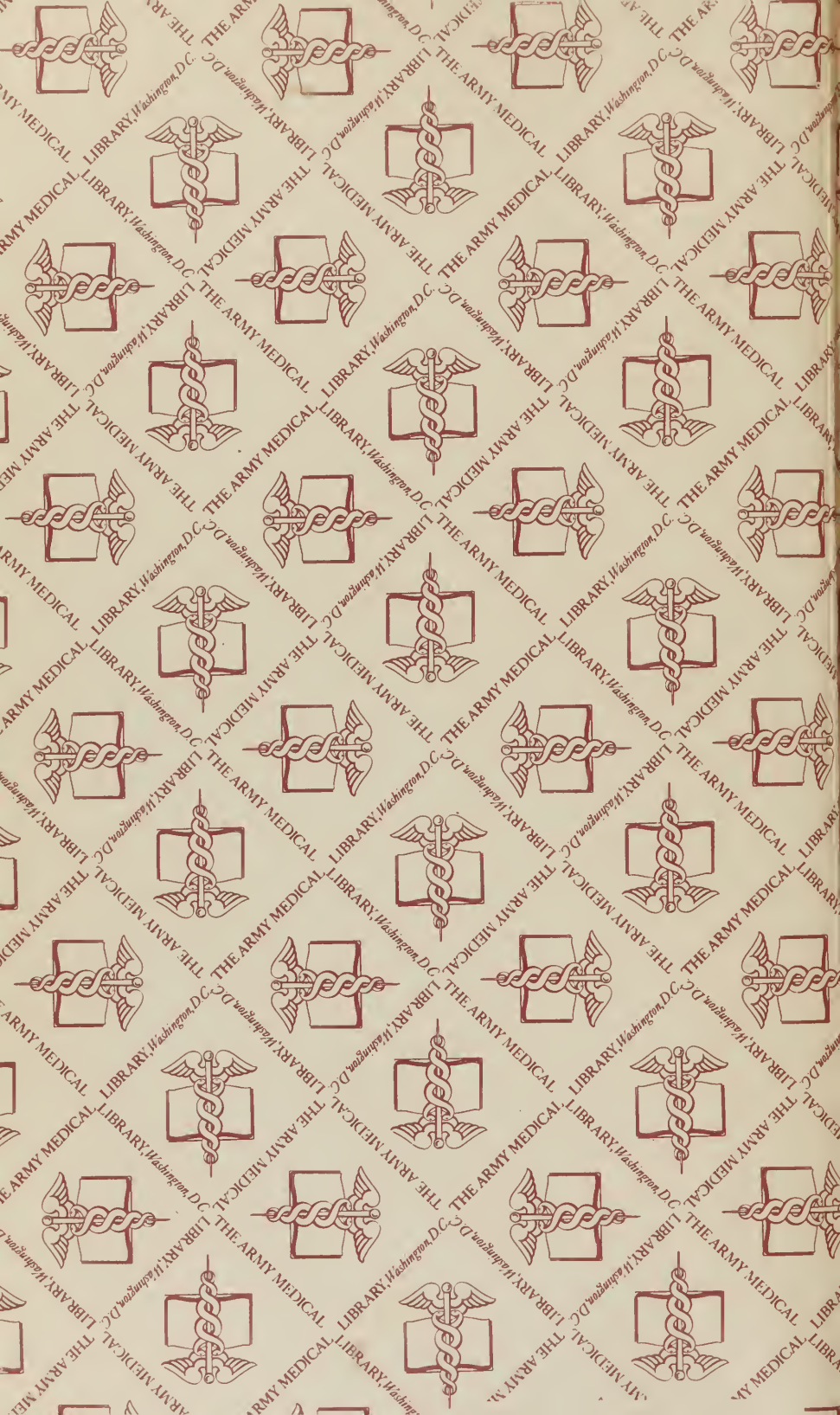
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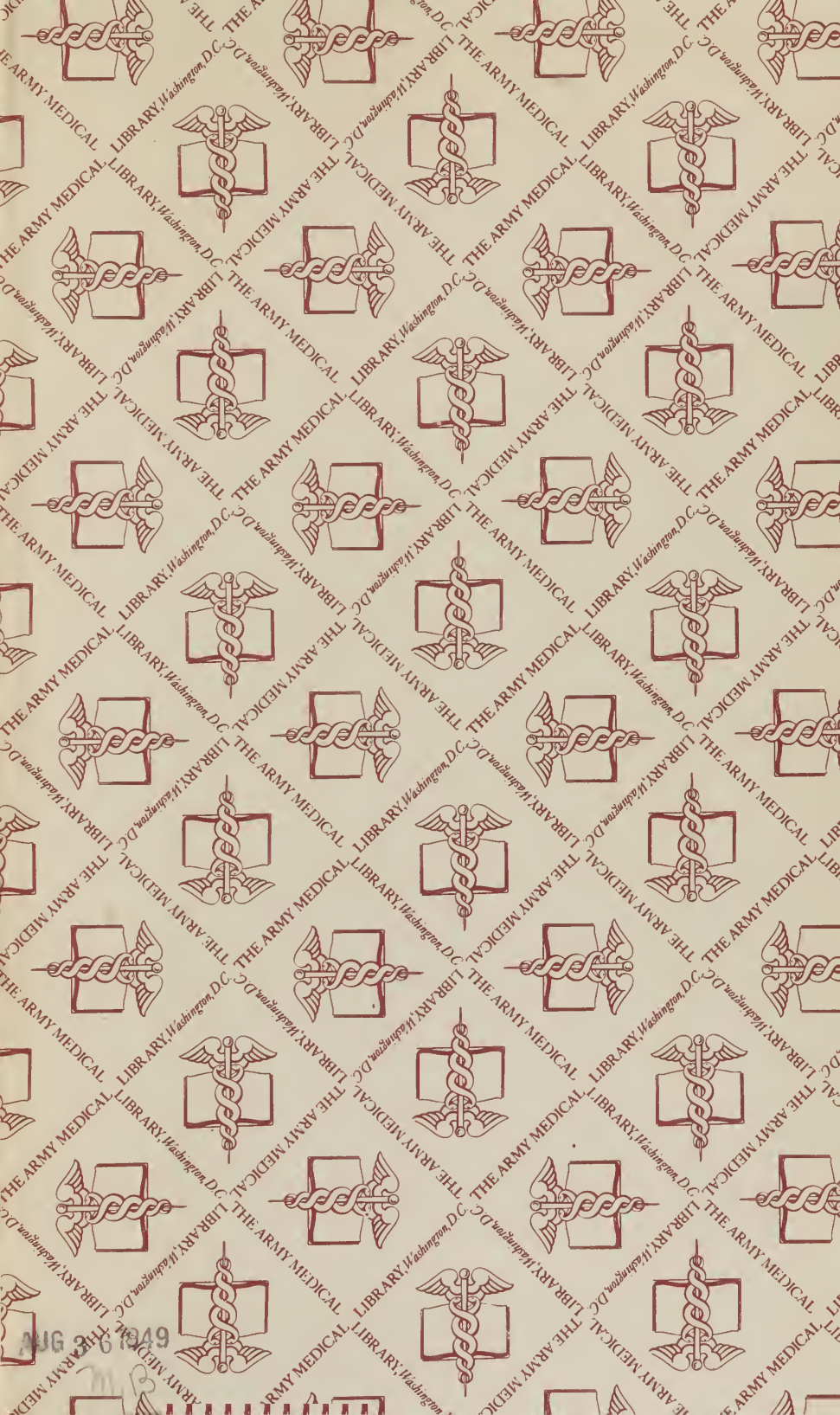
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THE END.





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